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VOL. II. Containing the MEDICAL PART.

By E. SIBLY, M.D. F.R.H.S. and Author of the Complete ILLUSTRATION of ASTROLOGY.

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CULPEPER's ENGLISH PHYSICIAN,

CONTAINING THE

MEDICAL PART.

A PHYSICAL AND ASTRONOMICAL DESCRIPTION OF MAN.

GOD, the omnipotent and wiſe Creator, having made all things out of nothing, and from a crude and undigeſted maſs, according to his will, and by his word, brought all things into a decent frame and majeſtic ſtructure: out of a confuſed chaos made the heavens and the earth; out of that which was dark and void, he created light; he ſeparated the waters from the earth, and gave bounds to the unruly waves; and indued the dry and barren earth with prolific virtue, richly adorning it with graſs, herbs, and fruit-trees; he made the ſun, moon, and ſtars, to divide the light from the darkneſs, to enlighten and rule both day and night, to be for ſigns, and to diſtinguiſh ſeaſons, days, and years: by his word he created every living thing that moveth.

Having thus far proceeded in his ſo excellent and admirable workmanſhip of creation, he made MAN a ſummary of the world's fabric, a ſmall draught of the divine nature: he was made after all other creatures, not only as the moſt perfect, but as the ſuperintendant and maſter, of all things: created *Quod dominetur in piſces maris, et in volucres cæli, et in pecudes, et in univerſam terram, atque in omnia reptantia ſuper terram*: "To rule over the fiſh in the ſea, and over the fowl of the air, and over cattle, and over the earth, and over every creeping thing." *Gen.* i. 28.

In man he ended his work; on man he ſtamped his ſeal and ſign of his power; on him he has imprinted his own image and ſuperſcription, his arms, and his portraiture. *Dixit Deus, faciamus hominem ad imaginem noſtram, ſecundùm ſimilitudinem noſtram:* "God ſaid, let us make man in our image, after our likeneſs." *Gen.* i. 26. In the creation of man, God ſeemed to deliberate and take counſel with himſelf how to epitomize and gather together all his works into ſo ſmall a compaſs, to contract his book of creation into ſo ſmall a volume. Hence he is called the *microcoſm*, or little world, the recapitulation of all things, the ligament of angels and beaſts, heavenly and earthly, ſpiritual and corporeal, the perfection of the whole work, the honour and miracle of nature. He created him naked, being a pure, neat, and delicate, creature, made up of thin, ſubtile, well tempered and ſeaſoned, humours, innocent, and far more beautiful than the reſt.

He was created upright, but little touching the earth, quite oppoſite to the vegetable plant, whoſe root is therein fixed; far different alſo from the beaſt, who is a mean between a plant and himſelf, and goeth downward, his two extremes tending to the bounds of the horizon: this upright gait belonging only unto the human ſpecies, as the holieſt and moſt divine creature, his head tending to the heavens, on which he looks, and contemplates with grateful adoration the omnipotence of his Creator.

His body being thus formed of pure ſubtile earth, as a houſe and habitation for the ſoul, God breathed into him *the breath of life, and he became a living ſoul.* Gen. ii. 7. So in the ordinary generation and formation, which is made of the ſeed in the womb, nature obſerveth the ſelf-ſame order; the body is firſt formed, as well by the elementary force, which is in the ſeed and heat of the matrix, as by the celeſtial influence of the ſun; according to the adage, *Sol et homo generant hominem*, "The ſun and man do engender man;" which is done, according to the opinion of the moſt eminent naturaliſts and phyſicians, in ſuch order, that the firſt ſeven days the ſeed of the man and the ova of the woman mingle and curdle like cream, which is the beginning of conception; the ſecond ſeven days, the ſeed is changed into a formleſs bloody ſubſtance, and concocted into a thick and undigeſted maſs of fleſh, the proper matter of the child; the next ſeven days, from this maſs is produced and faſhioned a groſs body, with the three moſt noble parts, viz. the liver, heart, and brain; and the fourth ſeven days, or near thirty, the whole body is perfected, jointed and organized, and is fit to entertain the ſoul, which inveſts itſelf into the body (according to the beſt authority) about the ſeven and thirtieth or fortieth day: at the third month, or thereabout, the infant has motion and ſenſe; and at the ninth month is brought forth. Theſe times cannot be ſo exactly prefixed, but that by the ſtrength and debility of the ſeed or matrix they

they may be either haſtened or prolonged. But I ſhall not enter minutely upon this ſubject now, but give a more particular deſcription of it hereafter.

The body of man conſiſts of a number of bones and cartilages, which are the baſis and upholding pillars of the whole fabric; the joints are compacted with many ligaments, and are covered with innumerable membranes: the members are ſupplied with about thirty pair of ſenſitive nerves, as with little cords; and all filled with as many arteries, like water-pipes, conveying vital ſpirits to all parts; the empty places are filled up with above four hundred muſcles of different ſorts, all covered with a ſkin.

Man, for whom all things were made, is nouriſhed by the balſamic ſpirits of vegetables, and therefore doth conſiſt of all theſe faculties, that ſpring up as a token of health or ſickneſs. The celeſtial planets have alſo great influence over him; the moiſtening power of the Moon is repreſented by the marrow which flows from the brain; in the genital part is Venus ſeated; eloquence and comelineſs are the effects of nimble-witted Mercury; the Sun hath a near affinity to the heart; benevolent Jupiter hath his ſeat in the liver, the fountain of nutritive blood; the fiery fury of Mars is lodged in the gall; the ſpongy and hollow melt, the ſeat and receptacle of melancholic humours, is a perfect repreſentation of the cold planet Saturn. Indeed, the ſpirits of the body do manifeſt and hold forth the quinteſſence of all things. The four humours in man anſwer to the four elements: as the bile, which is hot and dry, repreſenteth the fire; hot and moiſt blood, the air; phlegm, cold and moiſt, the water: cold and dry melancholy, the earth. Man is an admirable creature, the univerſe and epitome of the world, and the horizon of corporeal and incorporeal things. I ſhall conclude this part with the ſaying of Zoroaſter: "O man: the workmanſhip of moſt powerful nature; the moſt artificial maſter-piece of God's hands!"

A DESCRIPTION OF THE HEAD.

THE head of man poſſeſſes the higheſt place in the body, and repreſents the uppermoſt and angelical region: it is the ſort of man's mind, the ſeat of reaſon, the habitation of wiſdom, the place of memory, judgment, and cogitation: it containeth the brain, cold and ſpongious by nature, incloſed with two ſkins, the one, more hard and thick, joining itſelf to the *dura mater;* the other, more thin and eaſy, wherein lieth the brain incloſed, called *pia mater;* it is ſoft and tender to the brain, and nouriſheth it, as a loving mother doth her young and tender babe; from the *pia mater* iſſue the ſinews and marrow that deſcendeth and falleth down through the *vertebræ* of the back to the reins. In the brain is the ſeat and throne of the rational ſoul, in which are a very great number of veins and arteries running;

ning through all the ſubſtance thereof, adminiſtering to the brain both ſpirit and life, vital and nutrimental nouriſhment, which comes from the heart and liver by very minute or ſmall veins and arteries; and concocted and re-concocted, elaborated, and made very ſubtile, paſſing through thoſe woven and interlaced, turning and winding, in which labyrinth the vital ſpirit, often paſſing and re-paſſing, is perfected and refined, and becomes animal.

The *pia mater* divides the ſubſtance of the brain into three certain cells and diviſions, the foremoſt part of which contains the moſt, the middle part leſs, and the hindmoſt part the leaſt. In the foremoſt part of the brain *imagination* is ſeated; in the middle, *judgment;* in the hindmoſt part, *memory*. Imagination is hot and dry in quality, quick and active, from whence it cometh that frantic men, and ſuch as are ſick of hot maladies, are excellent in that which belongs to imagination; many, upon ſuch a diſtemper, have been excellent in poetry and divination; it never ſleepeth, but is always working, whether the man be ſleeping or waking; and, by the vapours that ariſe from the heart, form variety of cogitations, which, wanting the regulation of judgment, *when man ſleepeth*, becomes a dream.

Hence it appears that ſubtilty, promptitude, and that which they commonly call *wit*, belongeth to a hot imagination: it is active, ſtirring, undertaketh all, and ſets all the reſt to work; it gathers the kinds of figures of things, both preſent, by the uſe of the five ſenſes, and abſent, by the common ſenſe.

Judgment is ſeated in the midſt of the brain, there to bear rule over the other faculties; it is the ſeat of the rational ſoul, and the judge of men's actions: if you would know the mean whereby it knoweth and judgeth of things, ſome authors have been of opinion that the ſpirit knoweth by the help of the ſenſes, and that the underſtanding without the ſenſes is but as white paper. *Nil eſt in intellectu, quod non fuerit priùs in ſenſu:* "There is nothing in the underſtanding which was not firſt in the ſenſe." But this opinion is falſe, becauſe the ſeeds of ſcience and virtue are inſinuated into our ſpirits, elſe is the ſtate of the reaſonable ſoul worſe than the vegetative or ſenſitive, which of themſelves are able to exerciſe their functions. It were abſurd to think that ſo noble and divine a faculty ſhould beg aſſiſtance of ſo vile and corruptible a one as the ſenſes, which apprehend only the ſimple accidents, not the natures or eſſence, of things: and were it ſo, it muſt follow, that they who have their ſenſes moſt perfect ſhould be moſt witty, whereas we ſee many times the contrary. Yet let no one think that the ſpirit hath no ſervice from the ſenſes; for, in the beginning or diſcovery and invention of things, the ſenſes do much ſervice to the ſpirit, but the ſpirit dependeth not upon the ſenſes. Some are of opinion, that it is hot and moiſt in quality; others ſay, that a dry temperature is proper to the underſtanding,

whereby it comes to paſs that aged perſons excel thoſe in underſtanding that are young, becauſe, as years increaſe, moiſture doth decreaſe in the brain; hence it followeth, that melancholic perſons, that are afflicted with want, and faſt much, are wiſe and ingenious, for heavineſs and faſting are great driers: *Splendor ſiccus, animus ſapientiſſimus, vexatio dat intellectum;* "Heat and drought refine the wit, affliction giveth underſtanding." And that is the reaſon that great perſons, who feed high, and take little or no care, that have nothing to vex them, are for the moſt part not very wiſe.

Beaſts that are of a dry temperature, as ants, bees, elephants, &c. are cunning and ingenious; on the contrary, they that are of a moiſt conſtitution are ſtupid and without ſpirit. Memory is ſeated in the hinder cell of the brain, as the grand accountant or regiſter; ſome ſay its temperature is cold and dry, and that is thought to be the reaſon why melancholic people have good memories; others are of opinion that it is moiſt, becauſe children have better memories than old men; men are more apt for memory in the morning, by reaſon of the moiſture gained by ſleep in the night; but, let it be as it may, it is moſt certain, that thoſe who have a good memory are not in general very wiſe.

It is true, that many have been excellent in this faculty. Seneca repeated two thouſand names as they were firſt ſpoken; he alſo, hearing two hundred verſes, rehearſed them, and began at the laſt. Cyrus and Scipio knew every ſoldier's name in their armies. Mithridates learned the languages of two-and-twenty nations. Eſdras the prieſt had the whole Jewiſh doctrine by heart. Julius Cæſar would dictate to four at the ſame time; and that which is more ſtrange, Pliny would dictate to one, hear another, and read at the ſame inſtant. As theſe were ſo excellent and acute in memory, others were as dull: Atticus could never learn the letters of the alphabet by heart; others could not count above four. It is ſaid, that Theodore Beza, two years before he died, as he languiſhed, his mind grew ſo feeble that he forgot things preſent, yet held thoſe things which were printed in his mind before-time, when his underſtanding and memory were good. What ſhall we ſay of Meſſala Corvinus, who forgot his own name? or Franciſcus Barbarus, of Athens, a very learned man in the Greek tongue, who, having received a blow on the head with a ſtone, forgot his learning, which he had ſpent the greateſt part of his life-time upon, yet remembered all things elſe? Theſe things are brought to paſs either by the ſtrength or debility of men's genitures, and from directions and accidents thence proceeding. Wit and underſtanding, and all the faculties of the ſoul, depend on a certain temperament; and hence it comes to paſs, that thoſe who are acute and wiſe in ſome things are ſtupid and dull in others.

Of the INTERIOR PARTS of the HEAD.

The ſenſitive faculty has its reſidence in the *pia mater;* it is that which gives virtue to all the particular ſenſes, and keeps a harmony amongſt them: they are five in number, viz. ſeeing, hearing, ſmelling, taſting, and feeling. Although theſe are all united in one in the brain, yet operatively they are diſtinguiſhed by their ſeveral ſeats and places of reſidence.

Sight reſides in the eyes, and particularly in the cryſtalline humour; they are two in number, and collateral, planted in the higheſt ſtage, as centinels; they are the luminaries of the microcoſm; Galen ſays, the brain and head were made for the eye, that they might be in the higheſt, as beholders in a tower; they are next in nature unto the ſoul; for in the eye is ſeen and known the diſturbances and griefs, gladneſs and joys, of the ſoul, as love, wrath, and other paſſions. They are compounded and made of ſeven tunicles, or coats, and three humours; they proceed out of the ſubſtance, they take a pannicle to defend it from annoyance. They meet and are united into one ſinew, about half an inch in length, before they enter the ſkull; and after divide into two, each going into one eye; they are called *nervi optici*, the optic nerves, and through theſe are brought *viſible ſpirits* to the eye.

Theſe are the moſt noble outward parts of the body, in beauty, utility, mobility, and activity. They are to the viſage that which the viſage is to the body; they are the face of the face; and, becauſe they are tender, delicate, and precious, they are fenced on all ſides with ſkins, lids, brows, and hair. The object of the eye or ſight is colour, (according to the common opinion,) which is an adherent quality in bodies, whereof there are ſix ſimples, as white, yellow, red, purple, green, and blue; the compounds are infinite; to ſpeak more fully, the true object is light, which is never without colour, and without which the colours are inviſible.

The ſenſe of ſeeing excelleth all the reſt in many things; it apprehendeth farther off, and extendeth itſelf even to the ſtars. It is certainly reported, that Strabo had ſuch acute eyes, that from Lilybæum he could diſcern ſhips going forth of the Carthaginian haven, and could number them; the diſtance was one hundred and thirty-five miles. It hath more variety of objects; for to all things, and generally in all, there is a light and colour, the objects of the eyes, as I hinted before. It is moſt exquiſite, for it is moſt exact, in the leaſt and fineſt thing that preſents itſelf. It is more prompt and ſudden, for it apprehendeth even in a moment, and without motion, when the other ſenſes require motion and time. It enjoyeth a liberty incomparable to others; the eye ſeeth, or ſeeth not, and therefore

fore hath lids to open or ſhut: it is active; all the reſt purely paſſive. But that which is moſt noble in this ſenſe is, that the privation of the object thereof, which is darkneſs, brings fear, and that naturally, becauſe then a man findeth himſelf robbed of ſo excellent a guide; the ſight in the light is inſtead of company, wherein man much delighteth.

HEARING is the next ſenſe to be conſidered, whoſe reſidence is in the ears; it is in quality cold and dry, under the dominion of Saturn. They are placed on the outſide of the head, in the ſelf-ſame height as the eyes are, as the ſcouts of the body, porters of the ſpirit, the receivers and judges of the ſounds, which always aſcend. They have their entrance oblique and crooked, that ſo the ſound may not enter all at once, whereby the ſenſe of hearing might be hindered, and not ſo well able to judge; and again, that the ſounds, being fugitive, might there lurk, and abide under his ſhadow, till the inſtruments of hearing have gotten poſſeſſion thereof. The ſinews, that are the organs of hearing, ſpring each from the brain, and, when they come to the hole of the ear, they are wreathed together; the end is like a worm, or little teat, into which is received ſound, thence carried to the common wits to diſtinguiſh. The object of the ear, or hearing, is a ſound or noiſe proceeding from the encounter of two bodies; a pleaſant and melodious ſound ſweeteneth and appeaſeth the ſpirit, conſequently the body too, and drives maladies from them both; the ſharp and penetrant doth trouble and wound the ſpirit. This ſenſe hath many ſingularities; for the ſervice of the body, the ſight is moſt neceſſary, but, for the ſpirit, hearing hath the ſuperiority; it is ſpiritual, the agent of underſtanding; many that have been blind, have been great and wiſe philoſophers, but never any that were deaf. In brief, ſcience, truth, and virtue, have no entrance into the ſoul but by the ear. Chriſtianity teaches, that faith cometh by hearing, which the ſight doth rather hurt than help. Faith is the belief of thoſe things which are not ſeen, which belief is acquired by hearing. For all theſe reaſons, and many more that might be inſerted, the wiſeſt have ſo much commended hearing, the pure guardian from all corruption, the health of the inward man.

SMELLING is ſeated in the noſe, governed by Mars, and is hot and dry in quality; and therefore martial creatures, or ſuch as are hot and dry of conſtitution, excel in this faculty, as dogs, &c. From the brain cometh two ſinews to the holes of the brain-pan, where beginneth the concavity of the noſe, and theſe two are the proper organs or inſtruments of ſmelling; they have heads like paps, into which is received the virtue of ſmelling, and preſenting it to the common ſenſe. Over theſe two organs is placed *collatorium*, or the noſtrils, which concavity or ditch was made for

two cauſes: Firſt, that the air, that bringeth the ſpirit of ſmelling, might reſt therein till it was received by its proper organs. Secondly, that the excrement of the brain might be hidden under it till it be fit to be ejected. From this concavity go two holes into the mouth, of which we may take notice of three conveniencies: firſt, that when a man's mouth is cloſed, either by eating or ſleeping, air might come through them to the lungs, or he would be forced to keep his mouth open always. Secondly, they are helpful to a man's ſpeech; for, when one or both of thoſe paſſages are ſtopped, a man ſpeaketh in the noſe as we commonly ſay. Thirdly, they are uſeful in cleanſing the concavities of the noſe, either by ſnuffing or drawing it through the mouth. The object of ſmell is an odour, or ſcent, which is a fume riſing from an odoriferous object, aſcending through the noſe to the ventricles of the brain; the ſtrong and violent hurteth the brain; the temperate and good doth rejoice, delight, and comfort. This ſenſe is oftentimes very uſeful in diſcovering meats and drinks of an evil odour, which otherwiſe would much prejudice the ſtomach, and work evil effects in the body of the man.

The TASTE is hot and moiſt, and under the influence of Jupiter: this ſenſe hath its reſidence in the palate of the mouth and tongue. Its office is to chooſe what food is congruous to the ſtomach, and what not. The ſkin of the palate of the mouth is the ſame with the inward part of the ſtomach, and the ſame with the way of the meat to the ſtomach; and hence it cometh to paſs, that, when a man is touched upon the palate of the mouth, it tickleth the ſtomach; and ſo much the nearer to the throat, ſo much more the ſtomach abhorreth. The object of taſting is a ſavour or ſmack, whereof there are ſix ſimple kinds, as ſweet, ſour, ſharp, tart, ſalt, and bitter; the compounds are many. And, being led to the mouth, it is not amiſs if I ſpeak a few words of the compoſition thereof. In the mouth are five parts to be conſidered; the lips, the teeth, the tongue, the uvula, and the palate of the mouth, of which I have already ſpoken. The lips are made of a muſculous fleſh; their office is, firſt, as the door to the houſe, to keep the mouth cloſe till the meat be chewed; ſecondly, they help to pronounce the ſpeech. The teeth, the hardeſt members, are faſtened into the mandible: their office is, firſt, to grind the meat before it goeth into the ſtomach, that ſo it may the better digeſt; ſecondly, that it might be a help to the ſpeech, for they that want any of their teeth are defective therein. The number is uncertain, ſome have more, ſome have leſs; they who have their full number have thirty-two. The tongue is a carnous member, compound, and made of many nerves, ligaments, veins, and arteries, ordained principally for three purpoſes; firſt, that when a man eateth, the tongue might turn the meat in the mouth till it be chewed; ſecondly, by the tongue, and the palate of the mouth near the root of the tongue, is received

ceived the taſte of ſweet or ſour, and thence preſented to the common ſenſes to paſs judgment thereof: thirdly, and principally, the tongue is ordained for the pronunciation of ſpeech, which faculty I muſt crave leave to inſiſt on, and that as briefly as may be. Speech is an excellent preſent, and very neceſſary, given only unto man, *animi index & ſpeculum;* it is the interpreter and image of the ſoul; the heart's meſſenger; the gate through which doth paſs all that lieth within the dark and hidden corners of man: by this the ſpirit becomes viſible. Of all the external and viſible parts of the body, that which cometh neareſt to the heart is the root thereof, and that which cometh neareſt the thoughts is ſpeech: "Out of the abundance of the heart the mouth ſpeaketh." It is a powerful maſter, an imperious commander; it ſtirreth up, animateth, exaſperateth, appeaſeth, maketh ſad, merry; it imprinteth whatever paſſion it handleth; feedeth the ſoul of the hearer; it maketh him bluſh, wax pale, laugh, cry, tremble, mad with choler, leap for joy, what not? It is the agent of all our concerns; by it we traffic, peace is handled, affairs are managed; it is the band of human ſociety: hearing and ſpeech anſwer and are accommodated the one to the other; by theſe two the ſouls are poured the one into the other; ſo that, if theſe two gates be ſhut (as it is in thoſe that are deaf and dumb), the ſpirit remaineth ſolitary and miſerable. Hearing is the gate to enter; by it the ſpirit receiveth all things from without. Speech is the gate to go out; through it the ſpirit ſendeth forth that which was within. From the communication of theſe two, as from the ſtroke of two flints, there cometh forth the fire of truth; and ſo, by the poliſhing and rubbing of theſe two, knowledge cometh to perfection; but hearing is the firſt and principal, for there can nothing come forth which did not firſt enter; and therefore he that is deaf altogether by nature is alſo dumb.

I might enlarge a great deal more in the deſcription of the head, but, my purpoſe being to declare nothing but what may be pertinent in the manifeſtation of the human faculties and virtues, I ſhall conclude this diſcourſe with a word or two of the ſenſe of FEELING, which is of no particular quality, but of all, hot and cold, dry and moiſt; it is deputed to no particular organ, but is ſpread abroad over the whole body; it is the index of all tangible things; its object then muſt be heat or cold, drought or moiſture, things pleaſant and polite, ſharp and ſmarting, motion, reſt, tickling. It is known that man and other creatures may live without ſome particular ſenſe; it is the opinion of moſt, that a man cannot live without this ſenſe of feeling, being only neceſſary unto life; yet Auguſtine proveth the contrary, in the fourteenth book *De Civitate Dei*, by example of a preſbyter, that lay as though he were dead, and did not feel thoſe that pulled him, nor would he ſtir though they burned him with fire; yet confeſſed that he could then hear men

ſpeak (if they ſpoke aloud) as though they were far from him, by which it appears, that this he did, not by reſiſting, but for want of the ſenſe of feeling, which afterwards was reſtored to him again. I ſhall paſs by what the Engliſh hiſtory relates of one Elizabeth Barton, a maid of Canterbury, who oftentimes was deprived of her ſenſes by reaſon of a diſeaſe ſhe had.

I ſhall alſo wave diſputes concerning the number of the ſenſes, ſome ſuppoſing there are no more in nature than are apparent in us. There may very well be more, yet it is greatly to be doubted that there are; it is impoſſible for us to know them, to affirm them, or to deny them, becauſe a man ſhall never know the want of that ſenſe which he never had: one ſenſe cannot diſcover another; and, if a man want one by nature, yet he knows not which way to affirm it. A man that is born blind, and hath not heard what ſight is, cannot conceive that he ſeeth not, nor deſire to ſee. So man, being not able to imagine more than the five that he hath, cannot know how to judge whether there be more in nature. Who knoweth whether the difficulties that we find in many of the works of nature, and the effects of many creatures which we cannot underſtand, do proceed from the want of ſome ſenſe that we have not? There are hidden properties which we ſee in many things, and a man may ſay that there are ſenſible faculties in nature, proper to judge and apprehend them, yet muſt conclude we have them not. Who knoweth whether it be ſome particular ſenſe that diſcovereth the hour of midnight to the cock, and moves him to crow? or how beaſts are taught to chuſe certain herbs for their cure, and many ſuch-like wonders?

Of the STOMACH.

THE STOMACH is a member compound and ſpermatic, ſinewy and ſenſible, wherein is made the firſt perfect digeſtion of chyle: it is a neceſſary member to the body; for, if it fails in its operations, the whole fabric is corrupted. It is in the little world the ſame as the terreſtrial globe is in the great world; in it is expreſſed the ſublunary part of the world; in it are contained the parts that ſerve for nutrition, concoction, and procreation. And this leads me to diſcourſe of the adminiſtering virtues in man, which are here ſeated, and to wind up all with a touch of the office of the microcoſmical ſtars with as much brevity as may be. The ſtomach is framed of two panicles, the outer is carnous, the inner nervous, from which is ſtretched to the mouth the *œſophagus*, or the way of the meat, by which the ſtomach draweth to itſelf meat and drink as with hands. By the virtue of the ſubtile will, which is in this *muſcus longitudinalis*, is made the attractive virtue, which is hot and dry, by a quality active, or principal, which appears by the ſun, the fountain of all heat, which is of an attractive quality, as is evident

evident by his attracting and exhaling the humidity from this inferior globe into the airy region, as into the neck or higher part of an alembic; and, being reſolved into water, by reaſon of its weight falls down again upon the earth, which is the veſſel receiving: ſo, through continued diſtillations, by ſublimation of the water, by cohabation, by drawing off the liquor, (being often poured on,) and fortified by the influence of the celeſtial and central ſun, the body becomes endued with a concoctive, nutritive, and procreative, virtue. So in the ſtomach, by the active quality of the microcoſmical ſun, his benevolent rays, and friendly heat, meat and drink are deſired, and attracted into the ſtomach, for the nouriſhment of the whole body.

In the ſtomach is a tranſverſe muſcle, to withhold or make retention; by this retentive virtue, thoſe things that are brought into the ſtomach are kept and withholden until nature hath wrought her end, and every faculty hath executed its office. It is in quality cold and dry: cold, becauſe the nature of cold is to compreſs or hold together, as you may ſee in ice; dry, becauſe it is the nature of dryneſs to keep and hold what is compreſſed. It is under the influence of Saturn, and that is the reaſon why, for the moſt part, men that are cold and dry of temperature, or, as aſtronomers ſay, Saturnine people, are covetous and tenacious; and that is the reaſon that old men are naturally covetous, becauſe Saturn ruleth old age, and, by the decay of nature, the temperature becomes cold and dry. It hath the ſpleen, the repreſentative of Saturn, lying toward the left ſide, and furniſheth the ſtomach with humours neceſſary to fortify the retentive virtue.

The digeſtive faculty, which is the chief and moſt principal, (the others like handmaids attending it,) is hot and moiſt, nature's cook and principal workman, the archæus and central fire which in this philoſophical veſſel, viz. the ſtomach, digeſteth the victuals into a chaos, or confuſed maſs, that ſo a natural ſeparation may be made. It is under the influence of Jupiter, who furniſheth it with friendly heat and moiſture, by the liver, (the microcoſmical Jupiter,) chafing and heating the right ſide of the ſtomach.

The ſtomach hath alſo a latitudinal muſcle, or will, which makes the expulſive faculty; it is naturally cold and moiſt; cold, to compreſs the ſuperfluity; moiſt, to make the matter ſlippery and fit for ejection, alſo to work a ſuitable diſpoſition in the body. It is a neceſſary operation by it, after the ſeparation of the pure from the impure, the elements from the *caput mortuum*, or rather *fæces*, is removed and carried away, all that is needleſs or prejudicial to nature. It is under the dominion of the Moon, (with whom you may join Venus, being of the ſame nature,) whoſe epitome or microcoſmical ſubſtitute, viz. the brain, ſendeth a branch of nerves to the ſtomach, and thereby furniſheth it with humours, cold and moiſt, fit for expulſion.

Of the HEART.

THE HEART hath two ventricles or concavities, and the left is higher than the right; the cauſe of its hollowneſs is to keep the blood for its nouriſhing, and the air to abate and temper the great heat which is included and ſhut up in the concavities.

As he is *ſol corporis*, the centre of the reſt of the members, and ruler of the family, he communicates to them life and motion; yet by his heat he attracts what is needful for himſelf from the other members, as a ſubſidy or tax impoſed upon his ſubjects. And therefore to the right ventricle of the heart cometh a vein from the great vein, which receiveth all the ſubſtance of the blood from the liver; this vein paſſeth to the right ventricle of the heart, and bringeth a great portion of the thickeſt and pureſt blood to nouriſh the heart. The reſidue that is left of this is made more ſubtile through the virtue and heat of the heart, and then ſent into a concavity or pit, in the midſt of the heart, between two ventricles; therein it is made hot and pure, and from thence it paſſeth to the left ventricle, and there is engendered in a ſpirit that is clearer, brighter, and ſubtiler, than any corporeal or bodily thing which is engendered of the four elements, for it is a mean between the body and the ſoul; wherefore, of the philoſophers, it is likened more to heavenly than earthly things.

From the left ventricle of the heart ſpring two arteries, the one having but one coat, and therefore is called *arteria venalis*, which carries blood from the heart to the lungs, which blood is vaporous and fit for its nouriſhment, and carrieth back air from the lungs to refreſh the heart.

The other artery hath two coats: it is called, *vena arterialis*, or the great artery, of which ſpringeth all the other arteries, that ſpread to every member of the body, which carry the ſpirits, which are the treaſures of the ſoul's virtue; thus it paſſeth till it come to the brain, and be made an animal ſpirit; at the liver it is made nutrimental, and at the teſticles generative. Thus by the heart is made a ſpirit of every kind, and (like the ſun in the heavens) by his royal preſence he doth confer life and liberty on his ſuppliants.

The motion of the heart is wonderful; it continues to the utmoſt period of life, day and night, without a ſingle moment's interruption or intermiſſion; and is performed more than a hundred thouſand times every day. Here is, indeed, ſomething like what the mechaniſts want, under the name of a perpetual motion; and the ſtupendous wiſdom of the Creator is in nothing expreſſed more glorioufly.

Of the LUNGS, LIVER, &c.

THE LUNGS are made of a ſubſtance very ſoft and ſpongious; ſupple to draw and inforce from, like a pair of bellows; they are an inſtrument of reſpiration, whereby the heart is refreſhed, drawing unto it the blood, the ſpirits, and the air, and diſburthening itſelf of thoſe fumes and excrements which oppreſs it. They are naturally cold and dry, accidentally cold and moiſt: naturally cold and dry, waving about the heart, abating its heat by a refreſhing blaſt; they are accidentally moiſt, by reaſon of catarrhs and rheums, which they receive from the brain.

There are three principal parts in the lungs: One is a vein coming from the liver, which bringeth with it the crude and undigeſted part of the chyle to feed the lungs. Another is *arteria venalis*, coming from the heart, bringing the ſpirit of life to nouriſh the lungs. The third is *trachia arteria*, that bringeth air to the lungs, and it paſſeth through all the left part of them to do its office.

The lungs are divided into five portions or pellicles, three on the right ſide, and two on the left ſide; that, in caſe any impediment or hurt ſhould happen in any one part, the other ſhould be ready to ſupply the office.

I ſhall give no farther deſcription of the lungs, but deſcribe the liver, which is a principal member in the little world, repreſenting the planet Jupiter, *quaſi juvans pater*, hot and moiſt, inclining towards the right ſide, under the ſhort ribs. The form of the liver is gibbous, or bunchy, on the back ſide: on the other ſide hollow, like the inſide of a hand, that it might be pliable to the ſtomach (as a man's hand is to an apple, or any thing that is round) to further its digeſtion; for its heat is to the ſtomach as the heat of a fire is to the pot which hangeth over it. It is the ſtorehouſe of the blood, the fountain of the veins, the ſeat of the natural nouriſhing faculty, or vegetative ſoul, engendered of the blood of that chyle which it draweth from the meſeraic veins, and received by the *vena porta*, which entereth into the cavities thereof, and afterwards is ſent and diſtributed through the whole body by the help of the *vena cava*, which ariſe from the bunch or branches thereof, which are in great numbers as the rivers from the ocean.

The natural and nutrimental faculty hath its reſidence in the liver, and is diſperſed through the whole body with the veins, from which are bred four particular humours, viz. blood, choler, phlegm, and melancholy.

Blood is made of meat perfectly concocted, in quality hot and moiſt, Jupiter's darling, the moſt perfect and neceſſary humour, (the other three being ſuperfluities, yet neceſſary too.) The blood thus concocted is drawn out by the *vena cava*, whoſe branches, ramifying upwards and downwards, carry and convey it to all the

other members of the body for their nouriſhment, where, by a third digeſtion, it is tranſmuted into the fleſh.

Choler or bile, is made of meat more than perfectly concocted; it is the ſpume or froth of blood; it clarifieth all the humours, heats the body, and nouriſheth the apprehenſion. It is in quality hot and dry; it fortifieth the attractive faculty, as blood doth the digeſtive; it moveth man to activity and valour: it is under the planet Mars, whoſe reſidence is in the gall, which is an official member, a purſe or panicular veſicle, placed in the hollowneſs of the liver, whoſe office is to receive the choleric ſuperfluities which are engendered in the liver as aforeſaid. This purſe, or bag, hath three holes, or necks. By the firſt it draweth to itſelf the choler from the liver, that ſo the blood be not hurt by the bile, or choler. By the ſecond it ſendeth choler to the bottom of the ſtomach, to fortify the attractive faculty. And, laſtly, it ſendeth choler regularly to every gut, from one gut to another, to cleanſe them from ſuperfluities and droſs.

Phlegm is made of meat not perfectly digeſted: it fortifieth the virtue expulſive, and maketh the body fit for ejection; it is kind to, and fortifieth, the brain by its conſimilitude with it; it is antipathetical to the apprehenſion, and doth much injure it, therefore phlegmatic perſons have but weak apprehenſions: it is cold and moiſt in quality, its receptacle is in the lungs, it is governed by the Moon and Venus; therefore it qualifies the bile, cools and moiſtens the heart, thereby ſuſtaining it and the whole body from the fiery effects which continual motion would produce.

Melancholy is the ſediment of blood: it is cold and dry in quality; it maketh men ſober, ſolid, and ſtaid, fit for ſtudy or any ſerious employments; it curbs the unbridled paſſions incident to the ſanguine complexion: it ſtayeth wandering and idle thoughts, and reduces them home to the centre; it is like a grave counſellor to the whole body. It is governed by the planet Saturn, it ſtrengtheneth the retentive faculties, and its receptacle is in the ſpleen; which in the body is placed on the left ſide tranſverſely linked to the ſtomach.

Of the REINS and KIDNEYS.

THE REINS and KIDNEYS are placed within the region of the nutrites backwards, and they are ordained to cleanſe the blood from the watery ſuperfluities. They have two paſſages: by the one is drawn the water from the *venæ kelis*, by two veins, which are called *venæ emulgentes*, the emulgent veins; and by the other is ſent the ſame water to the bladder, and this is called *poros urithredes*.

The kidneys are made of a hard ſubſtance, and full of hard concavities, and therefore the ſores of them are hard to cure; they are harder in ſubſtance than any other

fleſhy member, and that for two cauſes: the firſt is, that they be not much hurt by the ſharpneſs of the urine; the other is, that the urine that paſſeth from them might be the better cleanſed. The heart ſendeth an artery to convey to them blood, heat, ſpirit, and life. And from the liver there cometh a vein, which bringeth nutrimental blood. Their fatneſs is as of other members, made of thin blood congealed by cold; there is the greater quantity in this place, becauſe it ſhould temper the heat of the kidneys, which they have from the biting ſharpneſs of the urine.

The next thing is the bladder, which is compounded of two nervous panicles; in complexion it is cold and dry; its neck is carnous, and hath two muſcles to withhold and to let it go; in man it is long, and is contained with the yard paſſing through the *peritoneum;* but in woman it is ſhorter, and is contained with the *vulva*. The place of the bladder is between the ſhare-bone and *longaon*. In women it is between the aforeſaid bone and the matrix. In the bladder are implanted the ureters, which bring the urine or water from the kidneys thither, and enter into the holes and panicles thereof, which is done by a natural motion between tunicle and tunicle, till the urine findeth the hole of the nether tunicle, where it entereth privily into the concavita. And the more the bladder is filled with urine, the ſtraiter are the panicles compreſſed together; the holes are not ſet one againſt the other, ſo that, if the bladder be never ſo full, none can go back again.

This is the microcoſmical ocean, into which all the rivers of the body diſcharge themſelves. There muſt needs be more than a watery ſubſtance in it; for many times, in diſeaſes, it is plentifully made, though the patient drinketh little or nothing; and it is obſerved that creatures that drink nothing will make water. Phyſicians oftentimes foretel many things by its colour, thinneſs, and thickneſs. Salt, you know, is hid in meats; and that plants have very much ſalt in them you may find by diſtilling them; and it is very well known, that by the chemical art many kinds of ſalt may be fetched out of urine. The artificial *cryſocolla* is made of urine. Nitre is made of earth moiſtened with the urine and dung of living creatures.

Of the GENERATIVE PARTS.

THE inſtruments of generation are of two ſorts, male and female; their uſe is the procreation of mankind, the operation is by action and paſſion, the agent is the ſeed, the patient the blood. Although this cometh to be ſpoken of in the laſt place, yet it might have deſervedly been put in the firſt; for nature regards not only the conſervation of itſelf, but to beget its like and conceive its ſpecies. Venus hath the principal government of the members of generation, in which members there are many parts deſerving our attention.

Firſt;

Firſt; of the genitals of men.—The firſt thing to be conſidered is, that which anatomiſts call *vaſa preparantia*, or preparing veſſels, which bring blood and vital ſpirit to the teſticles; they are four in number, and, before they come to the teſticle, they make a curious implication, intertexture, or twiſting, the one with the other, the arteries into the veins, and the veins into the arteries, which phyſicians call *corpus varicoſum*; ſome call it *pompiniformis*: this interweaving reacheth down even into the ſubſtance of them; their uſe is to mix the blood and vital ſpirit together, that ſo they may have a fit matter to work on.

The teſticles are of a white, ſoft, and ſpongy, ſubſtance, full of ſmall veins and arteries; or elſe, when humours flow to them, they could not ſwell to ſuch a bigneſs: their form is oval; of their bigneſs few are ignorant. Each teſticle hath a muſcle, which the learned call *cremaſter*, which ſerveth to pull them up in the act of generation, as its name in the Greek ſignifieth, that ſo the veſſels, being ſlackened, may better void the ſeed.

The ſeed being thoroughly concocted by the teſticles, there are two other ſmall pipes called *vaſa deferentia*; they are alſo called ſpermatic pores: their office is to carry the ſeed to the ſeminary veſſels, which are to keep it till need requireth its expulſion. From the ſtones they ariſe very near to the preparing veſſels into the cavity of the belly; then, going back again, they turn to the back ſide of the bladder, between it and the right gut, where they are joined to the ſeminal veſſels, which are ſoft and ſpongy, ſomewhat like kernels, through which paſſeth the *urethra*, or common paſſage in the yard both for ſeed and urine.

Hiſtories make mention, and experience evinceth, that ſome are born without teſticles, ſome with one. Philip, Landgrave of Heſſia, had three; he was ſo full of ſeed, and prone to venerous actions, that his wife could not ſuffer him ſo often as neceſſity urged him to it, he otherwiſe being chaſte and honeſt; he, relating his mind to the prieſts, with the conſent of his wife, took a concubine.

It is unneceſſary for me here to deſcribe the yard, and all the parts thereof, as their form, office, texture, ſympathy, &c. will hereafter be more particularly treated of in the anatomical analyſis; in this place, therefore, I only mean to give a brief touch of the moſt conſiderable parts.

I now come to the generative parts of women; and firſt of the *clitoris*, which is a ſinewy and hard body, much like the yard of a man, and ſuffers erection and falling, cauſeth luſt in women, and giveth delight in copulation: Avicenna calleth it the wand, or *albathara*; Albucaſis calleth it *tentigo*; and Fallopius ſaith, that this hath ſometimes grown ſo big, that women would copulate with others like men. This obſerve, that the paſſage of the urine is not through the neck of the womb; near

near the paſſage of the urine are four caruncles or fleſhy knobs; they are called *myrtiformes*, becauſe they reſemble myrtle-berries; the uppermoſt of them is largeſt, and forked to receive the neck of the paſſage of the urine; the others lie below this on the ſides, and are to keep back the air or any hurtful thing from the womb. In virgins theſe knobs are joined together by a thin ſkin, interlarded with ſmall veins, with a hole in the middle about the bigneſs of one's little finger, through which paſſeth the menſtruous blood: this ſkin is a note of virginity, for the firſt act of copulation breaketh it. I believe that this was that note of virginity which God gave to the Hebrews. Theſe knobs joined together do much reſemble a roſe not quite blown, therefore called a flower, whence comes the word to deflower a virgin. If I ſhould take upon me to declare the opinions of authors, it would prove (almoſt) an endleſs taſk; this I ſhall add, that I conceive it not a certain note of virginity, becauſe it may be broken without the act of copulation; as, namely, by applying peſſaries to provoke the menſtrues, or by a defluxion of ſharp humours, &c. but it is probable that the Jewiſh virgins were more careful of it, their reputation depending thereon.

The womb in figure is almoſt perfectly round, in virgins about the bigneſs of a walnut, yet, when a woman has conceived with child, it dilates itſelf to ſuch a capacity, that it is able to contain the child; the mouth of it is no bigger than to receive the glans of the yard, yet at the delivery makes room for the child to come out, be it ever ſo big: this made Galen admire, and it may be a great admiration to all, if we conſider the wonderful works of God in the creation of man: he who knows himſelf may know there is an all-powerful God! and therefore it was engraven with letters of gold over the porch of the temple of Apollo, the god (according to the Panims) of knowledge and wiſdom, this ſentence—*Know thyſelf*—as a ſalutation unto all; ſignifying, that he that would have acceſs unto that divinity, and entrance into that temple, muſt firſt know himſelf.

The womb before conception is ſmall, becauſe the ſeed, being but little in quantity, might be cloſe embraced and cheriſhed. Women have teſticles or ſtones as men have, but they differ from men's in theſe particulars: they are within the belly in women, in men without; they are not ſo ſmooth in women as in men; they are leſs than the ſtones of men; they are not ſtaid by muſcles, but by ligaments; men's are oval, but women's are flattiſh; they have but one ſkin, men's have four, becauſe they are without the body, and expoſed to the cold; they are more ſoft and cold than men's are. But they are ordained both in men and women for the ſame uſe, viz. to concoct ſeed; and, though Ariſtotle denied ſeed in women, yet Hippocrates, one of the ancients of phyſic, was of this judgment; and reaſon and experience confirm it.

The *vaſa preparantia*, preparing veſſels, and *vaſa deferentia*, carrying veſſels, are of the ſame nature and office as they are in men; they differ only in this, that they are ſomewhat ſhorter, having a ſhorter way to go, the teſticles being within the belly in women: but, leſt the ſhortneſs of the paſſage ſhould hinder their operation, God and nature have ſo provided, that they are more twiſted and interwoven than they are in men, that they may the better mingle the blood and vital ſpirit.

Thus have I given you a ſhort deſcription of man, the maſter-piece of God's workmanſhip; and in whom is compriſed a ſmall draught of all things in the univerſe. In man, as in a perſpective glaſs, may our mother-earth with her innumerable offspring be diſcovered; in him may the unruly and reſtleſs waves of the ocean be delineated: nor doth he only epitomize the elemental world, but alſo the celeſtial; in him are diſcovered the prudent, majeſtical, ſumptuous, magnificent, honourable, affable, and humane, ſolar quality: the unſteadfaſt, timorous, ſoon-daunted, oft-changing, and ſhifting, temper, among women, anſwers to the various motions of the low and oft-changing Luna. Others, in profundity of imagination, reſervedneſs of words, auſterity of actions, &c. are a fit portrait of the melancholy planet Saturn. There are yet a few in the world who are faithful, lovers of fair dealing, beneficent to all men, doing glorious, honourable, and religious, actions; juſt, wiſe, prudent, virtuous, &c. of the temper of benevolent Jupiter. There are (in our apprehenſions) too many of the martial temper, who are valiant, lovers of wars, frays, and commotions, ſubject to no reaſon, bold, confident, willingly obeying nobody, &c. Nor is Venus excluded thoſe people's affections who love mirth in words and actions, muſical, delighting in venery, drinking, and merry meetings, who trouble not themſelves with ſtate-affairs, nor are inquiſitive after armies or navies. Nor is Mercury without his party among us, who are ſubtile and politic, excellent diſputants and logicians, ſharp-witted, and able to learn any thing, men of unwearied fancies, and fit for any employment, yet inconſtant. The planetary influence in the good or ill diſpoſition of the air is lively repreſented in man. A healthy ſanguine conſtitution, or a delicate compoſure of heat and moiſture, anſwers to a ſerene and temperate air, with ſeaſonable moiſtening dews and ſhowers, which are the ſweet influence of the Sun, Jupiter, and Venus. The feveriſh, hot, and parching, diſtempers of the body, anſwer to the hot and ſcorching weather occaſioned by the fiery beams of Mars. Nor is the cold, chilly, melancholy, weeping, and lamenting, diſpoſition of many people, leſs repreſented by the melancholy, dark, cold, and wet, weather, proceeding from Saturn's influx. The intellectual world hath alſo in man its portraiture; witneſs the ſoaring contemplations of the ſoul of man, which cannot (like the body) be confined to any place, but in a moment ſurrounds this terreſtrial

Dodd Delin. View of the Celestial Influxon the Body of Woman as illustrated Battin Sculp.
in Culpepers Family Physician and Sibleys Occult Sciences.

globe; nor there content, but as ſoon mounts itſelf to the heavens, and ſearcheth their ſecret corners; nor there ſatisfied till he comes to the higheſt; for by his contemplations (having its original from the uncreated light) he reflects thither, viz. to the Divine Majeſty of heaven!

ANATOMICAL ANALYSIS OF THE HUMAN FRAME.

OF THE SKIN.

THE SKIN is a membranous covering of the body, ſimilar, ſpermatic, having blood mixed with it, reddiſh, white, looſe, and the inſtrument of feeling. It hath cutaneous veins and arteries, as alſo nerves; from the laſt of which, it receives its quickneſs of ſenſe. From the capillary veins and arteries it receives blood for nouriſhment, and vital ſpirit for quickening. Its temperature is cold and dry, or rather exquiſitely temperate, yet ſo that it may be the judge of feeling. The ſkin on the top of the head is thickeſt, that on the ſide thin, that on the face and palms of the hands thinner, that on the lips thinneſt of all; that on the tops of the fingers is mean, ſo that the ſenſe of touching may be the more perfect: its texture is ſlight, and very full of ſmall holes or pores, for the inſenſible tranſpiration of fumes, vapours, and ſweat. It takes its colour from the predominant humour, unleſs it be ſuch from the birth, as in Æthiopia. It has a double ſubſtance: the one is external, called *cuticula*, or the ſcarf-ſkin, becauſe it is placed upon the ſkin, as a cover or defence, every where perforated with pores, without blood and without feeling: its connexion is to the true ſkin, from whence it has its figure and colour; but in blackmoors, the *cuticula* being pulled off, the ſkin itſelf is white. It has no action, only uſe, which is to ſhut the pores of the ſkin, that the ichorous ſubſtance may not iſſue from the veins and arteries; to defend the ſkin from immoderate heat or cold; and to make it ſmooth, beautiful, poliſhed, and even. It is generated of a viſcous and oleaginous vapour of the blood. The other is the true ſkin of which we have firſt ſpoken, which is ſix times thicker than the ſcarf-ſkin; its pores will appear in winter-time, if it be made bare, and expoſed to the cold; for, where they are, the *cuticula* will appear like a gooſe-ſkin. The ſkin receives two cutaneous veins, through the head and neck, from the jugulars; two through the arms, breaſt, and back, from the axillaries; two through the lower belly, loins, and legs, from the groins, which are conſpicuous in women after hard labour, and in ſuch as have the *varices* in many branches. It has few arteries, and thoſe very ſmall, in the temples and forehead, fingers, ſcrotum, and yard.

Of

Of the FLESH.

THE FLESH is a ſimilar, ſoft, thick, ſubſtance, well compacted, made of blood alone, if it be red; but of blood and ſeed, if it be white. It is four-fold, viz. muſculous, viſcerous, membranous, and glandulous; of which the two firſt are very red, but the two latter white. Muſculous fleſh is ſoft and red, and that which is properly termed fleſh. Viſcerous fleſh is that of the bowels, which is the proper ſubſtance of the lungs, heart, liver, ſpleen, and kidneys; it is red, hard, fitted to prop up the veſſels, and to aſſiſt them in their particular and various operations. Membranous fleſh is the fleſhy ſubſtance of every membranous part, as in the gullet, ſtomach, guts, womb, bladder. Glandulous fleſh is the fleſh of kernels; it is white, thick, and ſpongy, formed of ſeed, (and therefore cannot properly be called fleſh,) of which ſome anatomiſts make many diverſities; but the true ſearcher may find the glandules differ not ſo much in ſubſtance as in their uſe and humour; which are, firſt, to ſupport the diviſions of the veſſels; ſecondly, to drink up ſuperfluous humours, becauſe they are of a hollow ſpongy ſubſtance, and are therefore vulgarly termed *emunctories*, or cleanſers of the noble parts, thoſe in the neck being accounted cleanſers of the head, thoſe in the arm-pits of the heart, and thoſe in the groin of the liver; thirdly, to moiſten the parts for their more eaſy motion, or to prohibit dryneſs, ſuch are thoſe which are ſituated by the tongue, larynx, eye-corners, &c.

Of the MEMBRANES.

A MEMBRANE is a ſimilar, ſpermatic, part; broad, ſoft, dilatable, white, containing and inveſting the parts, and carrying ſenſe to them. If, being a hollow body, it receives ſomething, as the ſtomach, bladder, gall, eye, it is called *tunica*, a coat; but, if it embraces and covers a ſolid body, it is called *membrana*, a covering: and thoſe which cover the brain are called *menings*. It is endued with ſenſe from itſelf. Membranes are the only true organs of feeling, ſerving the animal ſpirits to this purpoſe. Their uſe is, to inveſt the parts of the body, to defend it from injuries by reaſon of their hardneſs and compactneſs, to give them the ſenſe of feeling, to ſtrengthen them, to join parts to parts, and to keep them united; to ſeparate alſo the parts, and to cloſe the mouths of the veſſels. Some membranes are thin, ſome thick: the thin membranes alſo differ; for the *perioſtion* of the ribs is thinner than the *pleura*; the *perioſtion* of the head is thinner than the *pericranium*; the *pia mater* is thinner than the *dura mater*. The proper membrane of the muſcles

is

is thin, and is knit unto the muſcles by moſt thin filaments; its uſe is to clothe the muſcles, to ſeparate them one from another, and to impart to them ſenſe and feeling. The thick membrane is called by ſome a membranous muſcle, by others a nervous or fatty coat; it is called fleſhy, becauſe in ſome places, as about the loins, neck, ears, forehead, &c. it retains a fleſhy ſubſtance; but, in the abdomen of a man ripe in years, it has no fleſhy appearance at all. Its temperature is hot and moiſt, having its origin from blood: it is ſituated under the fat, and ſtretched out over the whole body univerſally, and is the fourth covering of the body, (but in beaſts it is next to the ſkin:) it has no figure but that of the body which it covers: its colour is various in divers places: in the neck, forehead, and privities, it is redder than elſewhere: in ſome places it is joined to the fat inſeparaby, in other places it may be ſeparated; and it communicates with the principal parts by the extremities of the veins, arteries, and nerves. It is very ſenſible, ſo that the rigour and trembling of the body depend thereupon: its uſe is to give foundation to the collecting and generating the fat, and to keep the fat in its due place, as alſo to divide one muſcle from another, and all of them from the other fleſh; to clothe the body, cheriſh the internal heat, and to defend it from external injuries; it ſticks cloſe to the fat, to the muſcles, and to the ligaments of the bones, and is firmly joined to the back in faſhion of a membrane, from whence it is ſaid to ariſe; it is ſo cloſely joined to the *muſculus latus*, that in the neck and forehead it can ſcarcely be ſeparated from it, whereby it is thought to conſtitute the ſame: to the ſkin it ſticks by very many veins, ſome few arteries, branches of nerves, and an innumerable quantity of membranous fibres.

Of a FIBRE.

A FIBRE is a ſimilar ſpermatic part, diſperſed through the ſkin, fleſh, and membranes, to make them the more firm, and, being naturally diſtended, to contract again in the ſame manner. By reaſon of the various ſituations thereof, it is ſaid to be either right, oblique, tranſverſe, or round, whereby it may not only help the membrane, but ſtrengthen it, as alſo the ſkin and fleſh of the muſcles; and, when dilated, reduce them to their natural ſtate. Each ſort of fibre is ſaid to perform a ſeveral action: as, the right to attract or draw to; the oblique to expel or thruſt forth; the tranſverſe to retain or hold; and the round to conſtrain or bind. But theſe actions of the fibres are not made ſo much by their own ſingular virtue as by the virtue of the member which they ſerve, or belong unto, from which they have their ſenſe and nouriſhment; for of themſelves they are ſenſeleſs.

Of a LIGAMENT.

A LIGAMENT, or band, is a ſimilar, ſpermatic, dry, part, adhering firmly to the bones, tying the parts of the body mutually together. Its ſubſtance is ſolid, white, bloodleſs, ſofter than a griſtle, and harder than the nerves and membranes; being of a middle ſubſtance between them. It is without cavity, ſenſe, or motion: their ſubſtance is in ſome places ſofter and more membranous than others, as in all ligaments which go about the joints. Their uſe is like a cord to connect or bind the parts of the body one to another, chiefly the bones, and to keep them ſo together, that they may not be luxated or disjointed. As to ſituation, ſome are within or among the bones, as the griſtly ligaments, which are thick and round: ſome are externally wound about the bones, which are thin and membranous. As to figure, ſome are broad, which are called membranous: others round and nervous: but they are called membranous and nervous only in reſpect to their external form or reſemblance, not to their internal eſſence; for they are all void of ſenſe, which they would not be, were they compoſed of the true ſubſtance of a nerve or membrane. All the ligaments are ſolid, none hollow, except the ſlender ligaments of the womb.

Of a CARTILLAGE or GRISTLE.

A GRISTLE is a ſimilar, ſpermatic, part, drier and harder than a ligament, but moiſter and ſofter than a bone, rendering the articulation the more pliable, and defending ſeveral parts from external injuries. Some are ſofter, eſpecially about the joints; others harder, and not much differing from the nature of a bone; and ſome are in proceſs of time turned into bones, eſpecially in aged people. It is without marrow, cavities, or ſenſe, being endowed neither with nerves nor membranes. Its matter is the ſame with that of the bones, being a moiſt earthy part of the ſeed, partly clammy and gluey, and partly fat, but more viſcous than fat: its uſe is to facilitate motion, that the bones rubbing one againſt another ſhould not wear and fret; to defend ſome parts from external injuries, itſelf being ſcarcely ſubject to any: to ſhape parts prominent or hollow, as in the ears, larynx, &c. to fill up hollowneſs in the joints, as in the knees; to ſerve for a cover, as in the epiglottis; to ſuſtain or underprop ſomewhat, as the griſtles of the eye-lids, to bear the hairs; and to make a connection or joining of the bones. Their ſituation, magnitude, and figure, are various, according to the bones they are joined with; their ſubſtance is ſometimes harder, as thoſe which in time become bony: ſometimes ſofter, reſembling a liga-

ment, and are therefore called griſtly ligaments; yet, though hard, they are flexible and tough, becauſe encompaſſed with viſcous ſlimy matter. As to their connection, ſome conſtitute parts in themſelves, as that of the noſe; others grow to the bones which knit them together, without any other medium, as in the ſhare or breaſt bones; or by common ligaments coming between, as in that joining called looſe articulation.

Of a TENDON.

A TENDON is a ſimilar, ſpermatic, ſolid, part, cold and dry, having a peculiar ſubſtance, continued from the beginning to the end of a muſcle, and the chiefeſt part thereof upon which the action of the muſcle depends, and no where to be found out of a muſcle. It has a nervous-like ſubſtance, yet extremely differing from a nerve; white, thick, hard, ſmooth, and extending according to the length of the muſcle, being ten times bigger than a nerve. Its figure is either ſolid and round, as in the *muſculus biceps;* or plain and membranous, as in the muſcles of the abdomen; being alſo either ſhort or long, and of a uniform ſubſtance in all its parts; ſo that, if it is nervous at the beginning, ſo it is at the end; but ſometimes it is nervous at the end, when the head of it is fleſhy; and, if its beginning is like ſmall ſtrings, they are united to form the tendon afterwards. The hard and ſtiff tendons have much fat about them, to ſoften them, that they may be the more pleaſantly moved; and therefore thoſe fibres diſperſed among the fleſh are nothing elſe but the tendon divided, and the tendon nothing elſe but fibres united; and therefore a tendon is either ſolid, compact, and united, or elſe diſgregated, ſevered, and divided into fibres. *United,* is where the whole tendinous part appears white, and hard, either in the beginning, end, or middle, or in all thoſe parts. *Severed* or *divided,* when produced into innumerable ſmall fibres, ſcarcely diſcernable to the ſight; being compaſſed about with fleſh.

Of the FAT.

FAT is a ſimilar, ſoft, oily, white, inſenſible, part: made to preſerve the natural heat, to help chylification, to facilitate motion, to moiſten other parts, and to nouriſh the body in famine. Its ſubſtance is two-fold, viz. greaſe and ſuet, which, although it is ſomewhat ſolid, yet is ſoft and oily, as may be perceived by handling: greaſe, or *axungia,* is eaſily melted, but not ſo eaſily congealed; *ſævum* or ſuet, is not ſo eaſily melted, but more eaſily hardened. Its origin is from the thinner parts of the blood, ſweating through the veins like dew, and congealing about the fleſh: this is the eſſential matter of fat; its efficient cauſe is a moiſt and temperate heat, (which is alſo the quality thereof;) the cauſe of its congealing is the coldneſs of the membranes,

membranes, from whence it has its white colour: but this coldneſs is not ſimple, but reſpective to other parts. Melted lead or wax will congeal in hot places, if the heat be leſs than that heat which will melt them: hence Galen determines fat to proceed from coldneſs; ſo that the fat, thin, and light, part of the blood, in colder conſtitutions is reſerved; whilſt in hotter bodies it is turned to nutriment, ſo that hot and dry bodies are hardly ever fat. Its ſituation is immediately under the ſkin, univerſally over the whole body, the forehead, eyelids, and privities, excepted: whence it is, that the fatty membrane is as large as the ſkin, and ſticks firmly to it, neither can it be divided from it without ſcraping; and ſo alſo it ſticks to the fleſhy membrane. It cannot communicate with the principal parts, becauſe it is not truly nouriſhed; nor yet lives, unleſs by oppoſition, as ſtones do, nor is it indeed ſenſible; therefore it wants both veins, arteries, and nerves, yet all three of them paſs through it to the ſkin. The fat of the belly has three veins: the external mamillary, deſcending from above; the *vena epigaſtrica*, ariſing from beneath, or out of the crural vein, through the groin; and that coming out of the loins, having many veins accompanied with arteries: through theſe, and the veſſels of the ſkin, cupping-glaſſes, and ſcarifications, draw humours out of the inward parts. It has a great number of kernels, which receive excrements out of the body into themſelves; and they are more numerous in ſickly perſons, and ſuch as abound with excrementitious moiſture. Its uſes are to cheriſh the natural heat; to help the concoction of the ſtomach; to moiſten hot and dry parts, ſuch as the heart; to facilitate motion in the principal parts, as in the griſtles and jointings of the greater bones, and about certain ligaments, as alſo in the ſocket of the eye, leſt by its continual motion it ſhould become dry and withered; to ſerve as a pillow or bulwark againſt blows, bruiſes, and contuſions, and therefore the palms of the hands, buttocks, and ſoles of the feet, have plenty of fat; to nouriſh the body in time of long faſting; to fill up the empty places in the muſcles, and to underprop the veſſels, that they may paſs ſafely; to fill up all the vacuities of the other parts, veſſels, and ſkin, that the body may be rendered ſmooth, white, ſoft, fair, and beautiful.

Hitherto we have treated of parts abſolutely ſimilar; thoſe which are ſo only in appearance or to ſenſe are in number five, viz. veins, arteries, nerves, muſcles, and bones; of all which we ſhall now treat in order.

Of VEINS.

A VEIN is a ſimilar, ſpermatic, membranous, round, long, hollow, part, every where joined by anaſtomoſes to the arteries; allotted to receive and contain the blood from them, to be farther concocted, and to be carried to the heart and liver, and to diſtribute

diſtribute it over the whole body. The original of their diſpenſations, or place from whence they riſe, is the liver, where blood is made; and that the firſt ſanguification is made there, and not in the heart, is apparent, becauſe there are no paſſages to convey the chylus to the heart, nor any receptacles for the excrements of the firſt concoction placed by the heart; all which requiſites are found in the liver. Moreover blood is carried from the liver to the heart, but not from the heart to the liver: for it cannot go out of the heart into the liver, becauſe of the valves, though immediately, when it runs back out of the arteries, it may be carried thither. Alſo the *vena cava* and *porta* enter not into the heart, but the liver; and, in a child in the womb, the navel-vein with blood (which nouriſhes the child) goes not into the heart, but into the liver; nor is ſanguification ever hurt but when the liver is hurt. The veins have only one tunicle, with many valves within, eſpecially in the external joints; they are nouriſhed with blood, not with that contained within themſelves, but with that from the little arteries; for their connection is ſuch with the arteries, that every vein is for the moſt part attended with an artery, over which it lies, and which it touches. Galen ſaith, a vein is ſeldom found without arteries; but no artery is ever found without a vein. Their form is that of a conduit-pipe: their magnitude according to their place: in the liver, and at their origin, they are great, becauſe they are hot, ſoft, and in perpetual motion, and becauſe all the blood in the body paſſes this way, out of the right into the left ventricle of the heart: in the heart they are great, by reaſon of its heat, and becauſe it is to furniſh the whole body with arterial blood, received in, and ſent out, by continual pulſations. The emulgent veins are great, becauſe of the plenty of blood, and ſeroſities, brought back from the kidneys to the vena cava: but, where the ſubſtance of the part is laſting, and the heat ſmall, the veins are leſs, as in the brain, bones, &c. and in all parts towards their ends they are very ſmall, and called capillary veins, being divided minutely, ſprinkled into, and for the moſt part conſounded with, the fleſh; by this way the arterial blood is mediately paſſed through the porous fleſh to the veins; and, by the ſame way alſo, blood made of chyle in the liver is infuſed into the little branches of the vena cava. The veins and arteries conſpire together, and the veins receive out of the arteries ſpirit and blood: and this is apparent, becauſe, if the veins be quite emptied, the arteries are empty alſo: moreover, by a vein opened in the arm or hand, all the blood in the body may be drawn out: alſo it is neceſſary in reſpect of the circular motion of the blood; and in many places it may be demonſtrated to the eye-ſight, where the conjunctions of the veins with the arteries are viſible. The veins are endowed with feeling, both from the nerves that are near them, and from their own membrane, which is one only, where they are inſerted into ſome bowel; otherwiſe they are beſides inveſted with a common membrane, or

ſome external thick one, borrowed from the neighbouring parts, when either they are ſuſpended and carried a long way without the bowels and muſcles, or when they reſt upon hard bodies. This happens, in the abdomen, to the veins and arteries from the *peritonæum;* and, in the cheſt, from the *pleura.* Their uſe is to receive the blood not ſufficiently elaborated from the arteries, and to return it to the liver and heart, there to be more perfectly concocted. For neither is the venal blood, nor do the veins carry any thing, uſeful for nutrition; but they bring back all the blood to the heart, only by circulation, either mediately by the liver, as the meſeraic veins, or immediately, as the *cava;* and that either from the whole body, from the ſmalleſt branches to the greateſt, by the upper and lower branch, or from the liver, whether it be the regenerated, or is derived from meſeraics and arteries. Hence it appears, that the veins carry and re-carry the blood to the liver, and to this end the valves of the veins do conſpire, which are ſo contrived, that they ſtand all wide open towards the heart, and afford an eaſy paſſage from the ſmalleſt veins to the greateſt, and from thence to the heart; but, from the heart and great veins, being ſhut, they ſuffer nothing to go back. The liver ſends only to the heart, the heart only to the lungs and all the arteries. Seeing therefore the blood is thus ſent into all parts, and cannot now be inſtantly repaired by diet, nor return back to the heart by the mitre-faſhioned valves of the aorta; nor abide ſtill in the arteries, which are continually moving forward the ſame; nor laſtly, that there can be ſo much ſpent by the parts to be nouriſhed: it neceſſarily follows, that what remains over and above is brought back again to the heart, and enters the veins by circulation. The ſubſtance of the veins is membranous, that they may the more eaſily ſtretch and ſhrink in again: they have only one tunicle which is proper to them, which is thin and rare: it is ſo thin, that through it the blood may be received after the parts are nouriſhed, and ſo be re-carried to the heart, to be there again perfected. The valves of the veins are little foldings, or gates; they are made of moſt thin little membranes in the inner cavities of the veins, and certain particles as it were of the coats of the veins: they are ſituated in the cavities of the veins chiefly of the limbs, viz. of the arms and legs, after the glandules of the arm-holes and groins, beginning preſently after the riſes of the branches, but not in the riſes themſelves; nor is there any of them in the external ſmall veins, becauſe they need them not; nor in the jugulars (except two in the inner orifice, looking from above downwards,) becauſe the blood doth hardly aſcend upwards; nor in the *vena cava,* becauſe the valves in the divarications do ſufficiently hinder the regreſs of the blood: they are alſo found in emulgents, and the branches of the meſentery, looking towards the *vena cava* and *porta,* as alſo in the milky veins. They all of them look the ſame way, one after another, towards the heart; and are placed at convenient diſtances,

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as two, three, four, or five, fingers between each, according to the length of the veſſel. As to their magnitude, they are greater where the plenty and recourſe of the blood is moſt vehement, being in form like the nail on a man's finger, or the horned moon, as the ſigma-ſhaped valves of the heart; and in their ſubſtance exceeding thin, but very compact, leſt they ſhould break by a ſtrong intercourſe of the blood. The uſes of the valves are, 1. To ſtrengthen the veins, whereas the arteries are otherwiſe made ſtrong by the double coats. 2. To ſtop the too violent motion of the blood, leſt it ſhould move violently out of the great veins into the little ones, and tear them. 3. To hinder the blood from regurgitating, or going backwards. Hence the cauſe of a *varix* is apparent, becauſe thick heavy blood long retained againſt the valves makes a dilatation; for without the valves the veins would ſwell uniformly and all of an equal bigneſs, and not in the manner of *varices*.

The chief veins of the whole body are of three kinds: firſt, *vena cava;* ſecondly, *vena porta;* thirdly, *venæ lacteæ;* from which ſeveral other eminent veins ariſe, having particular denominations. The *vena cava* or *magna* is ſo called becauſe of its largeneſs, being the greateſt in the whole body, and the original of all other veins which do not proceed from the vena porta. It takes its beginning from the liver, where, having ſpread many veins through the upper parts thereof, they are about the top collected into one trunk, which is preſently divided into two parts, viz. the upper or aſcending trunk, and the lower or deſcending trunk.

The aſcending trunk of the vena cava, which is the greater, perforates the *diaphragma* or midriff, and is ſpread through the breaſt, neck, head, and arms. It is carried undivided as far as the *jugulum*, and has four branches; viz. 1. *Phrenica vena diaphragmatica;* the midriff-veins, on each ſide one, which ſend their branches to the *pericardium* and *diaphragma*. 2. The *vena coronaria*, which is ſometimes double, encompaſſing the baſis of the heart, at whoſe riſe a little valve is placed to hinder the blood returning to the trunk; and with a continued paſſage it is joined to the artery, that it may therefrom receive the blood, which is to return to the cava. 3. *Azygos ſine pari*, the ſolitary vein, ſends chief intercoſtal branches to the eight lower ribs, ariſing from the fifth vertebra of the breaſt, from the hinder part of the *vena cava;* then, about the fleſhy appendices of the diaphragma, it enters the cavity of the abdomen, where on the left ſide it is inſerted in the emulgent vein; on the right ſide into the trunk of the cava. 4. *Subclavii*, or branches of the cava by the channel-bones, are divided into only two branches, one on each ſide; each of which is divided into two others, called the *ſubclavii*, and *axillaris*. From the *ſubclavii*, come forth two ſeveral branches, a ſuperior and inferior. From the ſuperior proceeds, firſt, the *muſcula ſuperior*, ſpread out into the ſkin and muſcles of the hinder part of the neck: ſecondly, the jugular veins, by the ſides of the neck; and they

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are either external or internal. The external jugular creeps up to the neck, chin, head, and face: under the root of the ear it is divided into internal and external branches: the internal goes to the muſcles of the mouth, fauces, hyoides, &c. from this branch ſpring the veins which are opened under the tongue. The external is propped with kernels, and is divided into two parts: the one is carried to the fore-parts of the face, cheek, and noſe; and in the middle of the forehead, being joined with a branch of the other ſide, it makes the vein of the forehead; the other is carried through the ſides, the temples, and the *occiput*. The internal jugular is called *apoplecta*, and aſcends to the ſide of *trachea*, to which it ſends branches: and, going to the baſis of the ſkull in its hinder part, it is divided into two branches: the greater of which is carried backward through the hole of the *os occipitis*, and enters into the cavity of the *dura mater* or thick meninx of the brain: the laſt enters in at the hole or *ſinus* of the third and fourth pair, and is carried alſo to the *dura mater*. From the inferior branch, proceed five veins, the *mammaria, intercoſtalis ſuperior, mediaſtina, cervicalis*, and *muſcula inferior*.

The *vena axillaris*, or arm-vein, when it comes to the arm-pit, is divided into two veins, viz. the *vena cephalica*, or upper branch; and the *vena baſilica*, or lower branch, to which is added the *mediana*. The *cephalica*, or head-vein, is carried in the ſurface of the body between the fleſhy membranes and coat of the muſcles. The *baſilica*, or liver-vein, is placed near a nerve of the third and fourth pair; and, therefore ſurgeons in opening of it ought to be careful, leſt they wound it, from whence follow great pain, fever, convulſions, and death. From the *baſilica*, or lower branch, ariſe two veins: firſt, *thoracica ſuperior*, which goes into the muſcles of the cheſt, and into women's breaſts; ſecondly, *thoracica inferior*, which ſometimes grows out of the ſuperior, creeping all over the ſide of the cheſt; its branches are joined by anaſtomoſis with the branches of the *azygos*, which proceed out of the cheſt. The *baſilica* is divided (under the tendon of the pectoral muſcle) into three branches: the firſt goes with the nerve of the arm; the ſecond is divided into an external, which ſends veins to the thumb, fore and middle fingers; and an internal, running along the middle bone of the cubit, ſending branches along the fingers to the internal muſcle of the hand; the third, called *ſubcutaneus*, at the inner ſwelling of the arm, is the inner branch of the *cephalica*, which conſtitutes in part the *mediana*.

The deſcending trunk of the *vena cava*, which is ſmaller and narrower, proceeds undivided as far as the fourth vertebra of the loins; and ſends forth the four following branches. 1. *Venæ adipoſæ*, which furniſh the coats of the kidneys, and their fat, the ſiniſter being commonly higher than the dexter. 2. The *emulgens*, or emulgent veins, deſcending to the kidneys by a ſhort and crooked

paſſage, bringing back the blood, being purified, from the kidneys to the vena cava. 3. The *ſpermaticæ*, or ſpermatic veins, the right ariſing a little below the riſe of the emulgent; and the left ariſing from the emulgent, ſeldom from the *cava*, ſometimes from both. 5. *Lumbares*, or loin-veins, ſometimes two, three, or four, which are carried between the four vertebræ of the loins. 6. After theſe branches the trunk goes towards the *os ſacrum*, and at the fourth vertebra of the loins it goes under the aorta, and is divided into two branches, called *rami ilii* or *iliaci*, becauſe they go over the *os ilii* and *os pubis*, to the thigh: theſe iliac branches, as ſoon as they have left the cavity of the belly, are called *venæ crurales*, or the leg-veins.

From the *rami ilii* ariſe two veins: firſt, *muſcula ſuperior*, which ſends veins to the *peritoneum*, and muſcles of the loins and belly; ſecondly, *vena ſacra*, which is ſometimes ſingle, ſometimes double, for the marrow of the *os ſacrum*. From thence the *ramus iliacus* is forked out on each ſide into the external greater and internal ſmaller. From the internal ſmaller proceed two veins: firſt, *muſcula media* without, which ſends veins to the muſcles on the outſide of the hip, and ſkin of the buttocks; ſecondly, *hypogaſtrica*, which is ſometimes double, ſending veins to many parts of the hypogaſtricum, as the bladder and its neck, to the penis or yard, to the muſcles of the inteſtinum rectum, whence are the hemorrhoides externæ, and to the lower ſide and neck of the womb, whence are thoſe veins by which the courſes flow in maidens and women with child; but, when the courſes are naturally voided, they flow from the arteries, as appears from their excellent colour and the common office of the arteries. From the external greater proceed three veins: 1. *Epigaſtrica*, which ſends branches to the peritoneum and muſcles of the abdomen; the principal parts aſcend under the right muſcles to the mammariæ, with whom they are often joined about the navel. 2. *Pudenda*, which ſends to the privities in men and women, and goes acroſs to the middle of the os pubis. 3. *Muſcula inferior*, which, paſſing over the hip, ſerves the muſcle and ſkin of the part; from hence downwards the iliac branches, as ſoon as they have left the belly, are called *crurals*.

The *crural veins* are interwoven with little glandules in the bending of the thigh, and from them proceed ſix branches. 1. The *iſchias* or *iſchiatica minor*, which is oppoſite to the *ſaphæna*, and ſerves the ſkin and muſcles of the hip. 2. *Iſchias* or *iſchiatica major*, ſends branches to the hip, and a part of the muſcles of the calf, and then divides itſelf into ten branches, beſtowing a couple upon each toe. 3. *Poplitea*, the ham-vein, made of a double crural branch, mixed together: it runs ſtraight under the ſkin behind, through the midſt of the bending of the ham to the heel, and ſometimes to the ſkin of the external ankle. 4. *Suralis*, a great vein, and is divided into the external and ſmaller, and internal and greater; and each of them again

into exterior and interior: all which ſend veins to the muſcles of the calves of the legs. Thoſe on the back of the foot, being mixed with the *poplitea*, make the ſame various texture of veins, which are ſeen under the ſkin. 5. *Sepæna*, (ſo termed from its apparency,) or *vena malcoli*, the ankle-vein, is long and large, carried on through the inſide of the thigh, between the ſkin and membrana carnoſa, to the knee; and from thence, by the inner part of the leg, it runs to the inner ankle, and to the upper part of the foot and toes. 6. The *muſcula*, a vein ariſing from the trunk or branch hidden among the muſcles: it is double, and remarkable, giving veins to the muſcles of the thigh. As to the veins of both arms and legs, it is to be noted, firſt, that their various branches ſend diverſe twigs outward to the ſkin, called cutaneous veins: ſecondly, that even the grand branches are variouſly diſtributed in every perſon, being ſeldom in one man as they are in another: and that the right arms or legs rarely agree with the left. In opening the veins of the foot, you may indifferently make choice of any, ſeeing they are all derived from one and the ſame trunk.

The *vena porta*, or gate-vein, is the next great vein to the cava; its prime original is the *vena umbilicalis*, or navel-vein, the firſt of all the veins ariſing from ſeed, and that by which the child is nouriſhed in the womb; afterwards it riſes out of the hollow part of the liver, where with many roots it is inſerted. The trunk, before it is divided into lower branches, ſends two ſmall veins to the gall-bladder, called *venæ cyſticæ;* and another vein to the ſtomach, called *gaſtrica dextra*, which is divided about the lower orifice of the ſtomach. Afterwards the trunk is divided into two eminent lower branches, viz. the ſplenetic, and the meſenteric. *Ramus ſpleneticus* goes into the ſpleen. Before it is divided, it ſends from itſelf two upper branches to the ſtomach; firſt, *gaſtrica ſiniſtra*, or *major*, (the largeſt of all the ſtomach-veins,) which afterwards conſtitute the *coronaria;* then it ſends lower branches, one to the omentum or caul, and one to the pancreas. Afterwards the trunk of the *ramus ſplenicus* is divided into the upper and lower branches; the former produces the *vas breve* and other little branches carried into the ſpleen: the latter produce, 1. *Gaſtroepiploica ſiniſtra*, which runs out upon the bottom of the ſtomach, and gives many branches both to the ſtomach itſelf and to the omentum. 2. *Vena epiplois*, which runs out upon the ſame parts; and a multitude of other ſmall branches, which are ſent up and down all over the ſpleen. The meſenteric branches of the *vena porta*, called *ramus dexter*, whoſe principal part goes into the meſentery, ſends forth two veins; one to the middle of the *duodenum*, from whence certain capillary twigs go through the pancreas and omentum upwards; and another to the right ſide of the ſtomach and omentum. Afterwards the trunk of the *ramus*

meſentericus is divided into two parts, the right and the left. The right-hand branch is two-fold: 1. *Gaſtroepiploica dextra*, which runs to the bottom of the ſtomach, and joins with the *gaſtroepiploica ſiniſtra*, ſending branches through the omentum and ſtomach. 2. The right meſenteric branch itſelf, which is divided into fourteen nameleſs little branches, and thoſe again into innumerable other little veins, which are called meſeraic veins, and are diſperſed into the *jejunum, ileon, cæcum*, and part of the *colon*. The left-hand meſenteric branch, firſt, ſends out the *vena hæmorrhoidalis interna*, which diffuſes itſelf through the menſentery, and ſends forth branches to the ſpleen, womb, and inteſtinum rectum, which is the internal hæmorrhoidal vein: hence appears a communion between the womb and the hæmorrhoidal of the anus, and that poſſibly the courſes or terms may be conveyed alſo this way. Afterwards this left meſenteric branch ſpreads itſelf abroad into the left and centrical part of the meſentery, whence come *vena cæcalis*, which goes to the blind gut; and *ramus meſocolicus*, which from the left ſide of the ſtomach goes to the colon. *Vena cava* firſt receives the cruder blood from the arteries, and remits it to the heart: the *vena porta* takes the blood not ſufficiently elaborated from the arteries, and carries it to the liver, for the more perfect concoction and ſeparation of the choler.

The *hæmorrhoidal veins* are ſituate in the fundament or *inteſtinum rectum*, and are of two kinds, either internal or external. The internal proceed from the *vena porta*; the external from the *vena cava*, with which the hæmorrhoidal arteries are aſſociated, and through which the humours to be evacuated are carried off. In their evacuation, the internal have a flux, not very plentiful, attended with a great deal of pain; the external emit a flux ſo large as may ſometimes cauſe death, or ſome grievous diſeaſe, but without any pain at all. The internal deſcend alone, not aſſociated with arteries; however, the arteries are either hidden, or they depend on arteries not far off: the external deſcend with arteries to the muſcles of the anus; and therefore the external hæmorrhoids may more properly be called *vaſa hæmorrhoidalia*, whereby the arteries are included with the veins.

The *venæ lacteæ*, or milky veins, are peculiar paſſages, much differing from the meſeraics; they are called *lacteæ* from milk, which they reſemble in whiteneſs, ſoftneſs, and fatneſs. Their ſituation is in the abdomen, where they are for the moſt part accompanied with fat, to cheriſh the natural heat for the attraction and concoction of the chylus. The great lactean vein, lying between the *arteria aorta* and the vertebræ of the loins, covered with fat, runs upward, and, above the heart, aſcends by the ullet to the left ſubclavian vein, where it ends in one, two, or three, branches: here a moſt thin valve occurs at the very end of the vein, looking inwardly,

wardly, that the chyle might not run back again, or run farther into the arm: out of this ſubclavial they deſcend by the aſcending trunk of the *vena cava* into the right ventricle of the heart, that there, by the help of the heat and the natural faculty, they may be changed into blood. Their ſubſtance is the ſame with that of a vein itſelf, which it reſembles in all things, the milky juice only excepted: having but a ſingle membrane, though in the meſentery they receive from it another external coat. They grow continually one to another, of an unequal magnitude; being for the moſt part ſmall, leſt the thick and unprofitable parts of the chyle ſhould go into them, or leſt they ſhould make a diſtribution thereof too ſuddenly: they are alſo infinite in number, diſperſed through the liver, meſentery, pancreas, and bowels. They are colder and moiſter than the ordinary veins; very thin, exceeding ſubtile, (where they enter into the body of the liver,) tender, ſmooth outwardly, rare, but rough by reaſon of the fibres within them. Their action and uſe are, 1. To carry or convey the chyle to the liver. 2. To digeſt and better concoct the chyle, to make it more fit to receive the form of blood in the liver; for the chyle is not changed at all till it comes into the liver, where it grows red by little and little. 3. To ſhow a ready way for the diſtribution of the chyle: that the blood is made in the liver, not in the veins; and that the ſucking of the veins is no cauſe of hunger, becauſe none are carried to the ſtomach. To ſhow the cauſes of ſome diſeaſes, before obſcure: as, of the chylous flux; of hypochondriac melancholy, of an atrophia, or pining away of the body for want of nouriſhment, by reaſon of the glandules of the meſentery being filled with ſcirrhous ſwellings; of intermitting agues quartered in the *meſaræum*, &c.

The beſt method of tracing the general courſe of the veins, is to begin with the main trunks or primary veins, and end with their ramifications and capillary extremities, according to their ſeveral diviſions and ſubdiviſions. In this manner they are traced in the annexed Plate, where fig. 1 repreſents the veins as, attached to body; fig. 2, the veins abſtracted from the body; and fig, 3, the pulmonary vein: of each of which the following is an explanation.

1. Vena cava, (fig. 1 and 2)
2. Cava deſcendens
3. Cava aſcendens
4. Vena azygos
5. 5. Subclavian veins
6. 6. Jugular veins external
7. 7. Jugular veins internal
8. The intercoſtals
9. 9. The mammary
10. 10. Auxillary veins
11. 11. Cephalic veins
12. 12. Baſilic veins
13. 13. Vena mediana
14. 14. Diaphragmatic, hepatic, and renal or emulgent, veins
15. 15. Spermatic and iliac veins
16. 16. Hypogaſtric, epigaſtric, and crural, veins.

Fig.

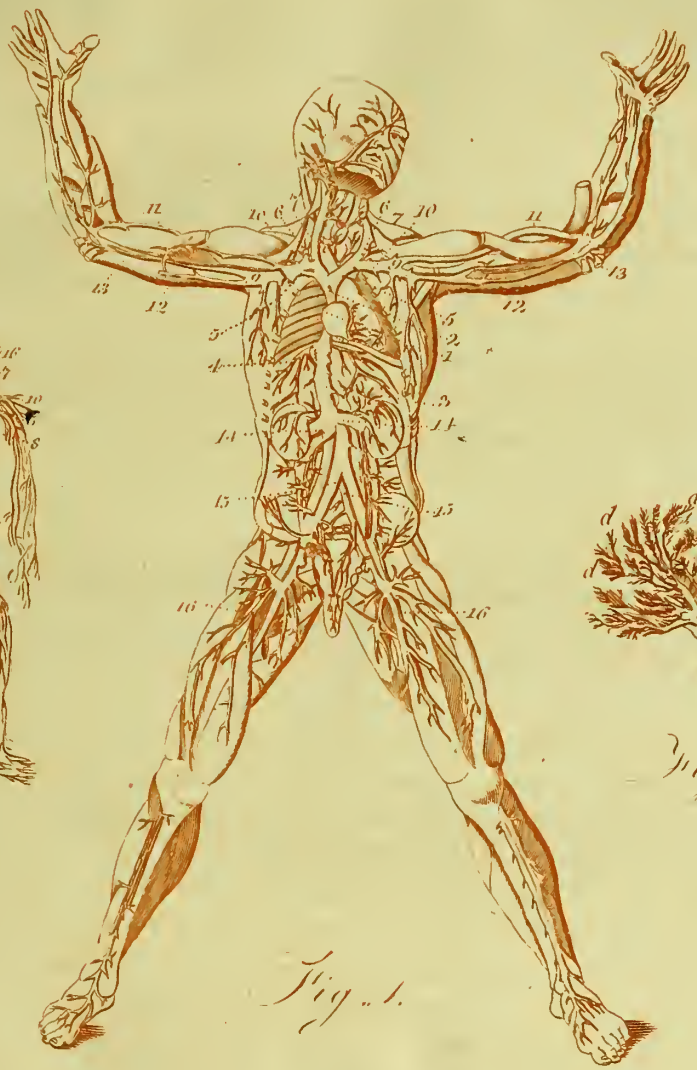

Fig. 1.

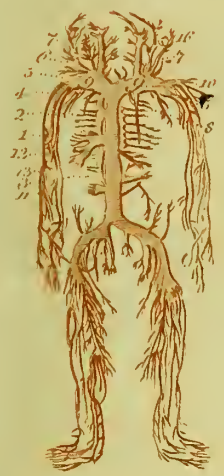

Fig. 2.

Fig. 3.

The Veins of the Human Body.

Fig. 3, repreſents the pulmonary vein in the time of expiration; *a* being its trunk, cut cloſe to the baſe of the heart; *b*, *b*, its diviſions to the right and left lobe of the lungs; *c*, the canalis arterioſus; *d*, *d*, the extremities of the arteries freed from the veſicles of the lungs, and their inoſculations with the pulmonary veins.

Of the ARTERIES.

AN ARTERY is a ſimilar, ſpermatic, membranous, long, round, hollow, part, a common pipe-like organ, conſiſting of a double coat proceeding from the heart, joined every where to the veins, by the aſſiſtance of many oſculations, containing and carrying the nutritious blood and vital ſpirits to all parts of the body. It is called *arteria*, from its containing and preſerving air or ſpirit; and therefore the ancients, as, Hippocrates, Plato, and Ariſtotle, call the wind-pipe *arteria magna*; but Galen makes a diſtinction, and calls the wind-pipe *aſpera arteria*, the rough artery, and thoſe of which we here ſpeak *arteriæ leves*, the ſmooth arteries, which Ariſtotle calls ſometimes *vena aorta*, and ſometimes ſimply *aorta*. Their matter is a cold clammy part of the feed: the original of their diſpenſation is the heart, and they proceed out of the left ventricle thereof, and not the middle, (as Ariſtotle would have it;) and therefore the aorta, or *arteria magna*, proceeds particularly from the left ventricle; but the pulmoniac artery (falſely called by the ancients *vena arterioſa*) from the right ventricle. Their uſe is, firſt, to carry the vital blood and ſpirits, made in the heart, to all parts of the body: ſecondly, to breed animal ſpirits in the noble ventricle of the marrow, (to wit) the brain; thirdly, for the nouriſhment of the body, and all its parts, which are only nouriſhed by the arterial blood and not by the venal: fourthly, to carry the excrements of the body and blood, either to the outward parts of the body, or to the kidneys, or meſentery or womb, or hæmorrhoidal veins, &c. The arteries flow only by pulſation: whereby, firſt, the heat of the parts is cooled and tempered; ſecondly, the nouriſhing arterial blood is caſt continually into the ſmalleſt and moſt remote arteries: which is proved by the continual pulſation of the heart, which drives the blood into the greater arteries: thirdly, the ſtagnation of the venal blood is hereby prevented: for the pulſation keeps it always in motion, by forcibly caſting the more than neceſſary arterial blood for nouriſhment into the veins, which convey it to the heart for ſupply, leſt it ſhould be deſtitute of its ſanguine humour by its continual expulſion. The cauſe of the pulſation, or pulſe, is, according to Bartholine, from both the blood filling, and the faculty of the arteries directing. But I judge the cauſe to be from ſpirit, wind, air, or breath: for, if you blow through a reed or pipe put into water, it will make an

apparent pulſation, or bubbling, much more if the water were contained in long narrow veſſels with valves, that it might not return back; but, if you ſuck with the pipe, then it runs ſmoothly, without pulſation or leaping: therefore the blood in the arteries flows with pulſation, from the expulſive faculty of the heart, cauſed by its ſpirits; but it flows in the veins ſmoothly, or without pulſation, becauſe it is ſucked or drawn back again by the attractive faculty, cauſed by want of ſpirits, or blood, or by their being waſted by the heart's perpetual expulſation. The ſituation of the arteries is deep, always under the veins both in the external and internal parts, the abdomen, a little below the kidneys, only excepted; for, after that the vena cava and aorta, deſcending from the diaphragma, have paſſed the region of the kidneys, the cava hides itſelf under the aorta, through all that region, till they paſs out of the abdomen; and then the artery again hides itſelf under the cava. The magnitude of the aorta is very great, but the deſcendant part is greater than the aſcendant, becauſe the number of the internal parts is greater than of the external. The number of arteries is leſs than of veins, becauſe the paſſage of the blood is quick through the arteries, but ſlow through the veins; but there are more arteries than we can well diſcern, becauſe the capillary arteries are very much like the veins. Their ſubſtance is membranous, ſo that they can be both diſtended and contracted more than the veins: and it conſiſts of two peculiar tunicles; the exterior is thin, ſoft, and rare, like the tunicle of a vein; the interior is compact, hard, and very thick, five times thicker than the tunicle of the veins; that thereby the arteries may be ſtrong to endure their perpetual motion, and to keep in their thin and ſpirituous blood, which would ſoon vaniſh and fly away.

The *arteria magna*, or aorta, the great and chiefeſt artery, comes from the left ventricle of the heart, with a wide orifice; it has a double tunicle, the innermoſt of which is five times thicker, leſt, by continual pulſation about the heart and ſolid parts, it might incur an incurable rupture. From the ventricle of the heart, before it perforates the *pericardium*, it ſends forth to the heart itſelf the coronary artery, which compaſſes the baſis of the heart, ſometimes ſingle, ſometimes double. Afterwards, coming through the *pericardium*, or heart-bag, it is divided into two trunks, the ſmaller aſcending and the greater deſcending.

The ſmaller or aſcending trunk of the aorta, or *arteria magna*, reſting upon the wind-pipe, provides for all the parts about the heart, and is divided into two ſubclavial branches: the latter riſing lower, and going more obliquely to the arm; the others, before they go out of the thorax, (for afterwards they are called *axillares*,) produce the *intercoſtales ſuperiores*, proper to three or four upper ribs: from their upper part ariſe four arteries: 1. *mammariæ*, which go to the paps; 2. *cervicales*, which

which go to the muſcles of the neck; 3. *arteria muſculæ*, which are approximate to the jugular veins; 4. the *carotides*, or ſleep-arteries, which are two, unequal, and aſcend upwards to the head by the ſides of the wind-pipe, being knit to the internal jugulars: when they come to the *fauces*, before they enter the ſkull, they give branches to the larynx and tongue, and then they divide themſelves into the *carotis externa* and *carotis interna*. The *carotis externa*, being the ſmaller, furniſhes the cheeks and muſcles of the face: at the root of the ears it is divided into two branches: the firſt is ſent to the hinder part of the ear, whence ariſe two other branches, which go to the lower jaw, and the root of all the lower teeth; the ſecond goes to the temples, the forehead, and muſcles of the face. The *carotis interna* at the ſaddle of the *os ſphænoides*, under the *dura mater*, makes the *rete mirabile*, then paſſes through the *dura mater*, and ſends forth two branches: the firſt, which is the ſmaller, goes with the optic nerve to the eyes; the ſecond, which is the greater, aſcends to the ſide of the *glandula pituitaria*, and is diſtributed through the *pia mater* and the ſubſtance of the brain.

When the ſubclavial branches have left the breaſt or thorax, they are called *axillares*, and carry nouriſhment to the outward part of the breaſt, and to the whole arm. From the axillares ariſe the *thoracica ſuperior*, or upper breaſt-artery; *thoracica inferior*, or lower breaſt-artery; the *ſcapularis*, or ſhoulder-blade artery. From the upper part of the axillares ariſes the *humeraria*: the remainder goes from the axillary on each ſide to the arm; where it is carried along through the arm, deſcending between the muſcles, with a vein and nerve of the arm. Under the bending of the elbow it is divided into two branches, the upper and the lower, which accompany the branches of the *vena cava*, and are called by the ſame names. The upper goes right forward through the middle to the wriſt, where the pulſe is commonly felt: from thence, proceeding under the ring-ſhaped ligament, it beſtows branches upon the thumb, fore-finger, and middle-finger. The lower branch runs through the *ulna* to the wriſt, and ſends twigs to the ring or little finger, and ſo proceeds to the wriſt beneath, where the pulſe may alſo be felt, eſpecially in ſuch as are lean, and have a ſtrong pulſe: but the beating of the pulſe is much better felt in the upper branch, that being leſs covered or hid by the tendon.

The deſcending trunk of the aorta ſends out branches from itſelf unto the thorax, abdomen, and thighs. From the thorax it ſends forth two arteries: 1. the *intercoſtales inferiores*, which runs to the intervals of the eight lower ribs, and the neighbouring muſcles; 2. the *phrenica*, which ſends to the diaphragma or midriff, and *pericardium* or heart-bag. The reſt of the trunk pierces through the cleft of the

ſeptum,

ſeptum, and ſends ramifications through the abdomen; ſome of which go along with branches of the *vena porta;* others with the branches of the *vena cava.*

Afterwards the *arteria magna*, or aorta, haſtens the beginning of the os ſacrum, where it goes above the *vena cava*, and no longer under, leſt, by reaſon of its continual motion, it ſhould be hurt againſt ſome bone; and here it is called the iliac artery. It is divided like the *vena cava* into two iliac trunks, and each trunk into an inner and leſs branch, and into an outward and greater, which go to the thigh. Theſe trunks ſend out on each ſide ſix branches: 1. the *ſacra*, immediately after the bipartition; 2. *muſcula inferior;* 3. *hypogaſtrica;* 4. *umbilicalis;* which laſt three come from the inner trunk; 5. *epigaſtrica;* 6. *pudenda;* which two laſt come from the exterior trunk.

The reſt of the artery (out of the abdomen,) being carried to the thigh, changes its name, and there makes the crural arteries; from whence on each ſide ſpring branches above and under the ham. Above the ham, from the outward part of the trunk: 1. *muſcula cruralis externa*, which go to the foremoſt muſcles of the thighs, from the inner: 2. *muſcula cruralis interna*, to the inner muſcles of the thigh; and this is mixed at the knee with a little twig of the *hypogaſtrica.* Under the ham ariſe, 1. *popliteus*, which goes to the hinder muſcle of the thigh: 2. *ſuralis*, which is divided into, firſt, *tibicus exterior;* ſecond, *poſterior altus;* third, *poſterior humilis*, for the muſcles of the leg: 3. the laſt of them is ſent to the foot and toes, all along accompanied with the veins from which they borrow their names. To enter into a more minute detail of their ſubdiviſions would be uſeleſs: the arteries being all delineated on the annexed plate, with references to the ſeveral names, as follows:

1. Aorta, cut from its origin, at the left ventricle of the heart. 2, 2. Trunks of the coronal arteries. 3. The three ſemilunar valves. 4, 4. Subclavian arteries. 5, 5. Carotid arteries. 6, 6. Vertebral arteries. 7, 7. Arteries of the tongue, &c. 8, 9, 10. Temporal arteries. 11, 11. Occipital arteries. 13, 13. Contorſions of the carotides. 15, 15. Ophthalmic arteries. 16, 16. Arteries of the cerebellum. 18, 18. Ramifications of the arteries within the ſkull. 19, 19. Arteries of the larynx. 21. 21. Mammary arteries. 23, 24, 25, 26. Arteries of the arm. 27. Arteries of the hand and fingers. 28, 28. Deſcending trunk of the aorta. 29. Bronchial artery. 31, 31. Intercoſtal arteries. 32. Trunk of the cœliac artery. 33, 33, 33. Hepatic arteries. 34. Arteria cyſtica. 35, 36, 37, 38, 39. Arteries of the ſtomach, pylorus, and epiplois. 40, 40. Phrenic arteries. 41. Trunk of the ſplenic artery. 43, 44, 45, 46, 47. Meſenteric arteries. 49, 49. Emulgent arteries. 51, 51. Spermatic arteries. 52. Arteria ſacra. 53, 53. Iliac arteries. 54, 54. 58, 58. Iliaci externi. 55, 55.

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59, 59. Iliaci interni. 56, 56. Umbilical arteries. 57, 57. Epigaſtric arteries. 60, 62. Arteries of the penis and pudendum. 61, 61. Arteries of the bladder. 69, 69. 70, 70. Crural arteries. 72. Arteries of the leg. 73. Arteries of the foot.

b

Of the NERVES.

A NERVE or ſinew is a ſimilar, ſpermatic, membranous, long, and white, hollow, part: a common organ, ſerving to carry the animal ſpirits into all parts of the body for ſenſe and motion. Its efficient cauſe is the *vis nervifica*, the nerve-making power or faculty: its matter is a cold and clammy part of the feed. The original diſpenſation is from the *medulla oblongata*, partly as it is within the ſkull, and partly as it is in the back-bone. Their end and uſe is to carry the animal faculty with the animal ſpirits from the brain, for the ſenſe and motion of the whole body. And therefore the nerves inſerted into the parts give either ſenſe alone, or both ſenſe and motion, there being neither without help of a nerve: for, a nerve being cut, the ſenſe and motion of the part is loſt. But this ſenſe or motion is according to the parts where they are diſſeminated, becauſe the nerves of themſelves are neither ſenſitive nor motive; if they are inſerted into muſcles, (the organs of motion,) they are termed *nervi motorii*, motive nerves: if into the inſtrument of ſenſe, *nervi ſentientia*, the ſenſitive. Their ſituation is, for ſecurity, deeper than that of an artery: their magnitude is various, according to the nature of the organ, and dignity of the action. Thoſe of the eyes are large, becauſe of the action; thoſe of the limbs very large and thick, becauſe of their diſtance and magnitude; thoſe of the ſenſory parts are in a middle proportion; thoſe of the neareſt parts, as in the muſcles of the face, are the ſmalleſt of all. The number of the nerves is taken from their conjugations or pairs, and are ſo called from their coupling or being double; for they ſprout out on both ſides, except the laſt or loweſt, proceeding from the ſpinal marrow. The form or figure of the nerve is long, round, and ſmooth, like conduit-pipes; ſolid to appearance, having no ſuch hollowneſs as the veins and arteries have; but they have cavities or pores, for the carrying off the animal ſpirits, though not perceptible to the eyes. The ſubſtance of all the nerves is compoſed of many nervous fibres, which grow mutually together by little membranes; and this ſubſtance is thought to be threefold: 1. the internal white and marrowiſh, from the marrow of the brain, but more compact and thickened; 2. an inner coat from the *pia mater;* 3. an outward coat, from the *dura mater;* but theſe things ſenſe cannot diſcover. The ſubſtance of the nerves is alſo either harder or ſofter; the harder are ſuch as either go a great way, or through ſome hard body, or by a crooked way, or are ordained for motion,

which requires ſtrength; and all parts which have voluntary motion have hard nerves; for that which is hard is fitted to act, that which is ſoft to ſuffer; the ſofter nerves are ſuch as are the ſhorteſt, and which belong to the organs of the ſenſes, as the ſeeing, taſting, hearing, and ſmelling, which laſt are the ſofteſt of all; and theſe require ſoft nerves, as being the objects of ſuffering. As their uſe is to carry the animal ſpirits and faculties into all parts for ſenſe and motion; ſo, if they be obſtructed in their original or beginning, or totally, they both periſh, and an apoplexy is cauſed: if the obſtruction be but in part, then one part is deprived of ſenſe and motion: if they are cut aſunder, the motion of the part into which they are inſerted is loſt: moreover the nerves diffuſe animal light into the parts, by which they are directed in their operations. Hence it appears how neceſſary it is for a phyſician to know the nerves, their original, differences, and diſtribution, that he may underſtand to what part of the *ſpina dorſi* topic medicaments are to be applied, when ſenſe or motion is hurt in the face, neck, arms, hands, muſcles of the belly, womb, bladder, anus, yard, thighs, legs, or feet. Moreover, the cauſe of the gout ſeems chiefly to be the extravaſating of the nervous juice; for the nervous juice, being over-heated or rarefied by too much heat, cannot be contained in its proper place; but ſeeking more room flies out of the ſolid capacity of the nerve (its proper domicil) into the hollow of the nerve, the channel of the animal ſpirits, thereby interfering with them, cauſing an extenſion of the nerve, oppoſition, and conſequently pain. In the annexed Plate all the nerves are delineated, agreeable to the following deſcription and arrangement.

The nerves of the brain are nine pair. 1. The olfactory pair, (fig. 2,) *a a*, which, paſſing through the os cribroſum, are ſpread over the membrane of the noſtrils. 2. The optic pair, *b b*, which by their expanſion form the retina of the eye. 3. The motory pair of the eyes, *c c*, each of which is divided, near the orbit, into ſix parts, or branches; of which, in human ſubjects, the firſt branch goes to the elevator palpebræ; the ſecond, to the elevator of the eye; the third, to the depreſſor; the fourth, to the adducent; the fifth, to the inferior oblique muſcle; and the ſixth, into the tunics of the eye; but, in other animals, they are divided much otherwiſe. 4. The pathetic pair, *d d*, which are very ſmall, and run to the trochlear muſcle of the eye. 5. The guſtatory pair, which are very large, and divided within the cranium into three brances, *f f*, immediately under the dura mater: of theſe the firſt branch, called the ophthalmic, runs to various parts of and about the eye, the eye-lids, the muſcles of the forehead and noſe, and the integuments of the face. The ſecond branch may be called the ſuperior maxillary one, as being finally diſtributed through all parts of the upper jaw, the lips, noſe, palate, uvula, gums, and teeth: a branch of it

alſo

alſo runs to the ear, and, joining with a branch of the ſeventh pair, forms the chorda tympani. The third branch may be called the maxillaris inferior, as being diſtributed over the ſeveral parts of the lower jaw, the tongue, and other parts of the mouth; whence the whole pair of nerves has obtained the name of *par guſtatorium;* though a great part of them ſerves to very different purpoſes, and is carried to parts that have nothing to do with taſting. 6. The abducent pair, *g g*, except a branch for the formation of the intercoſtal nerve, is wholly carried to the abducent muſcle of the eye; whence its name. The intercoſtal nerve (fig. 1 and 2), *i i i*, *l l*, *m*, &c. is formed either of the ramification of the two preceding nerves, or only of thoſe of the ſixth pair. It makes its way out of the cranium by the paſſage of the internal carotid, and deſcends near the eighth pair through the neck; and thence through the breaſt and abdomen, even to the pelvis; and, in its way, makes various plexuſes and ganglia, and ſends branches to almoſt all the parts contained in the breaſt and abdomen. 7. The ruditory pair, *h h*, ariſe with two trunks; the one of which is called the *portio dura*, or hard portion; the other the *portio mollis*, or ſoft portion. The laſt enters the foramen of the os petroſum, and thence through various little apertures gets into the labyrinth of the ear, where it is expanded over all its parts, and conſtitutes the primary organ of hearing. The harder portion, paſſing the aquæduct of Fallopius, ſends back one branch into the cavity of the cranium; it alſo ſends off another branch, which helps to form the *chorda tympani;* and others to the muſcles of the tympanum. The reſt of this pair goes to the external ear, pericranium, the muſcles of the os hyoides, the lips, the eye-lids, and the parotids. 8. The par vagum, *k k k*, with the *acceſſorius* of Willis, paſs out near the lateral ſinuſes of the dura mater; and, deſcending through the neck and thorax to the abdomen, ſend out branches by the way to the larynx, the pharynx, the heart, the lungs, and eſpecially to the ſtomach. It alſo ſends off from the upper part of the thorax large branches, which are variouſly implicated in the neck, thorax, and abdomen, with the linguals, the cervicals, and the intercoſtals. 9. The lingual pair go immediately to the tongue, and are called by ſome the motory nerves of the tongue; but by others, with more juſtice, the guſtatory nerves.

We are to obſerve, ſays Heiſter, that the pair of nerves, which the generality of writers have called the tenth pair of the head, are, for many unanſwerable reaſons, to be properly called the firſt pair of nerves of the neck. Of the nerves which ariſe from the ſpinal marrow there are properly thirty-two pair. Thoſe of the neck are no leſs than eight pair: and from them are innumerable branches diſtributed through the muſcles of the head, the neck, the ſcapula, and the humerus, marked A, B, C, D, &c. to O O, the eighth and laſt pair: from the third, fourth, and fifth, pair, are

formed the nerves of the diaphragm; and the ſixth, ſeventh, and eighth, pair, together with P P, the firſt pair from the back, form the ſix robuſt nerves of the arms and hands. To this diviſion is the acceſſory ſpinal nerve of Willis to be referred, which ariſes about the origin of the third and fourth pair.

The nerves of the back are twelve pair, marked P P, Q Q, R, S, &c. to Z, and α, β, &c. which, beſides the branch they give to the brachial nerves, run entirely in the ſame furrow along the courſe of the ribs, and are diſperſed over the pleura, the intercoſtal, pectoral, and abdominal, muſcles, the breaſt, and other parts of the thorax.

The nerves of the loins are five pair, marked τ, Φ, ϖ, Γ, Θ, with their branches υ, χ, ψ, &c. Theſe are in general diſperſed over the loins; the peritonæum, and the integuments and muſcles of the abdomen: and, beſides this, their firſt pair often gives, on each ſide, a branch of the diaphragm. The ſecond pair after inoſculating with the branches of the firſt, third, and fourth, pair, forms the crural nerves, 6,6, 7,7, 8,8, &c. which are diſtributed over the interior part of the thigh: and, in the ſame manner, a branch is formed of the conjugations of the ſecond, third, and fourth, pair, which paſſeth through the great foramen of the os pubis to the ſcrotum, the teſticles, and the adjoining parts. The fourth aud fifth pair of the nerves of the loins, joining with the firſt, ſecond, third, and fourth, pair of the os ſacrum, compoſe the nerve called *iſchiatic*, which is the largeſt in the body, being marked, 3,3, in fig. 2. it deſcends along the hinder part of the thigh, and its branches are diſtributed over the whole leg, the foot, and toes; being marked 15, 17, 18, &c.

The nerves of the ſacrum form five or ſix pair, though not always determinately and regularly ſo; they paſs through the foramina of this bone, and the ſuperior ones of them, as already obſerved, compoſe the iſchiatic nerve; and what remains is diſperſed, in a multitude of ramifications, over the parts contained in the pelvis, the inteſtinum rectum, the bladder, the parts of generation, and the parts adjacent. They are marked in the figure, Λ, Ξ, Π, Σ, &c.

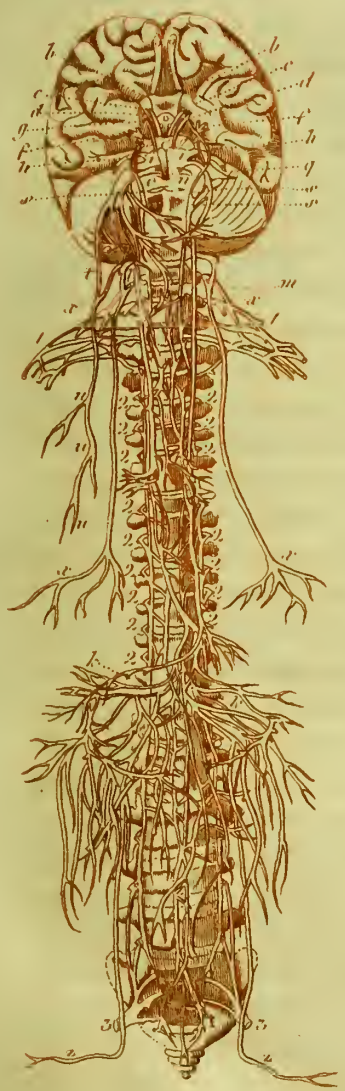
We ſhall only add, that 1, 1, fig. 2, repreſent the brachial nerves; 2, 2, &c. the communications of the vertebral nerves with the intercoſtals; *l l*, remarkable communications between the phrenic nerves and the intercoſtals; *t*, *u*, *u*, &c. the acceſſory nerve of the eighth pair; *x x*, the phrenic nerves; and *z z*, the nerves which go to the teſtes, uterus, &c.

Of the MUSCLES.

A MUSCLE is a ſimilar, ſpermatic, ſanguineous, membranous, fleſhy, fibrous, part, and the inſtrument of voluntary or free motion. It is compoſed of fibres, for the intention of the motion; or fleſh, for the ſubſtance; of tendons, which perform the

Fig. 1.

Fig. 2.



The Nerves of the Human Body

the action; of arteries, by which it is nouriſhed; of veins, which carry back the ſuperfluous nouriſhment; of nerves, which give ſenſe, and convey the motive faculty to the brain; of membranes, which encompaſs and keep the muſcles together; of fat, which moiſtens them and keeps them from being dried by too much motion. The fibres and fleſh are only extended according to the ſtraight poſition of the fibres; the tendon is in the beginning and end; the arteries and veins run through the ſubſtance of the muſcle; the nerve, as ſoon as it is entered into the ſubſtance, is diſperſed into a great number of twigs, which end in it, and become inconſpicuous; the membrane is proper to the muſcle only, and ſprings either from the tendons, or is framed by nature in the firſt conformation of the parts; the fat lies in void ſpaces to prevent a vacuum or emptiness. The action of a muſcle is voluntary or free motion. This action or motion is threefold: firſt, when the muſcle is contracted towards its head within itſelf, thereby relaxing the oppoſite muſcle; ſecondly, when the motion is tonic, ſo that being contracted it remains ſo; theſe two motions are primary, *per ſe*, and not accidental; thirdly, when (after contraction) it is relaxed, or reſtored to its former poſition, which motion is accidental, and proceeds from another: and therefore muſcles are always placed one againſt another as antagoniſts. The manner of this action or motion varies according to the variety of the parts; for, in the throat, it is ſwallowing; in the arm, bending and ſtretching forth; in the anus, expulſion and retention, &c. This motion is voluntary or free: for we can haſten or ſlacken, make or ſtop, this motion, as we pleaſe; but there are ſome ſingular muſcles, as of the inſide of the ear, the midriff, the muſcles of the cheſt, and of the eye-lids, whoſe motion is partly voluntary, partly natural, becauſe they often perform their actions when we have no thought or will thereto. Thoſe muſcles which only perform continual or ſtrong motions, which are all ſuch as are appointed for moving the bones, have tendons; but thoſe which move other parts, as the tongue, lips, forehead, face, bladder, anus, &c. ſeldom have any; for the muſcles move themſelves only, as thoſe of the anus and bladder; or they move with themſelves and the ſkin alſo, as in the lips, forehead, and face; or they move a bone, and ſuch, by reaſon of the ſtrong motion, require tendons. The diverſity of this motion comes from the diverſity of the ſituation: ſo a ſtraight muſcle has a ſtraight motion; a tranſverſe, a tranſverſe motion; an oblique, an oblique motion; and that which compaſſes a part has an orbicular motion, as the ſphincters. The efficient cauſe of theſe actions, or motions, is the ſoul of the creature, inclined thereto by the appetite or will: now the ſoul uſes three inſtruments to perform the action: firſt, the brain to receive the charge; ſecondly, the nerve, to carry it to the muſcle; thirdly, the muſcle, to perform the action itſelf.

The differences of muſcles are various: Firſt, from their ſubſtance; ſome are fleſhy, as ſeveral of the tongue and larynx; ſome membranous, as the conſtrictores of the noſe; ſome partly fleſhy, partly nervous, as the temporal muſcles. Secondly, from their quantity; the greateſt of all is the firſt of thoſe which extend over the breaſt; for it aſcends from the end of the os ſacrum to the firſt vertebra of the thorax; the leaſt of all is the internal muſcle of the ear. Thirdly, from their ſituation. Fourthly, from their figure, or form, or number, as the muſcle deltoides; the muſcle bicipites, having two heads; alſo ſome have two tails. Fifthly, from their beginnings: ſome proceed from bones, ſome from cartilages, as thoſe of the larynx; ſome from tendons, as the lumbricales. Sixthly, from the action; ſome move by ſympathy, as the *fraterni*, or *congeneres*; or by antipathy, as the *antagoniſtæ*; ſome move themſelves only, as the ſphincters; ſome move other parts; ſome have only one motion, as moſt of the muſcles; ſome have more than one, as the maſſeter and trapezius; ſome are *flexores*, ſome *extenſores*, ſome *rotatores*, ſome *ſupinatores*. As to its being a ſimilar part, it is only ſaid to be ſo according to ſenſe or appearance; and that it is ſuch, it appears, foraſmuch as it forms not of itſelf alone the moſt ſimple organical part, as a finger or toe, &c. but they take into their compoſition, with a muſcle, ſeveral other ſimilar parts, as bones, cartilages, membranes, ſkin, &c. Moreover, a truly diſſimilar or organical part is only found in itſelf, not in other parts: but a muſcle, as it is but a part of all diſſimilar parts, ſo it goes univerſally or every where to the conſtitution of all organical parts, which even the moſt ſimple organical parts do not.

The muſcles of the head are either proper, from which come the primary motion upon the firſt vertebra, to which they are immediately and cloſely joined, being bent forward and backward, or turned round: and they are in number eighteen ſingle, or nine pair; or common, which are thoſe, which together with the head move the neck, and theſe are the muſcles of the neck, of which in their proper place. The firſt pair is called *ſplenius*, or *ſplenicus*, or *triangularis;* it proceeds from the firſt vertebra of the breaſt, is ſpread out on each ſide upon the vertebra, reaching to the third vertebra of the neck, from whence it is carried to the middle of the occiput; its uſe is to draw the head directly backwards: but, if only one of the muſcles acts, the motion is circular to one ſide. The ſecond pair is called *complexus* or *trigeminus;* it is a large muſcle aſſiſting the other. It has divers beginnings at the ſeventh vertebra of the neck, and at the firſt, third, and fourth, of the breaſt, and is after a different manner terminated in the *occiput*. The third pair is called *ſub-ſecundo*, and inſerted into the hindermoſt root of the *proceſſus mammillaris:* its uſe is lightly to bring the head backwards; or backwards to one ſide, if but one muſcle acts. The fourth pair, called

recti majores, are ſmall, fleſhy, and lean, and ſpring from the edge of the ſecond ſpondil or vertebra of the neck, ending in the middle of the occiput. The fifth pair, called *recti minores*, lie concealed under the former, proceeding from the back part of the firſt ſpondil, or vertebra of the neck, and is inſerted into the occiput; its uſe is the ſame with the third and fourth pair. The ſixth pair is called *obliqui majores*; it lies beneath, and ſprings from the proceſs of the firſt vertebra, and ends in the occiput, by the outſide of the *recti*. The ſeventh pair, is called *obliqui minores;* it ariſes from the ſecond vertebra of the neck, is inſerted into the tranſverſe proceſs of the firſt vertebra, and terminates in the occiput: the uſe of theſe two oblique pairs is to bring the head about to the ſides. The eighth pair, called *maſtoides*, is placed in the fore part; they ariſe for the moſt part double, long, and round, in the fore part of the neck, from the upper part of the *ſternum* or breaſt-bone, and midſt of the *clavicula*, and is obliquely inſerted into the mammillary proceſs, which it embraces; its uſe is to turn the head. The ninth pair, called *fallopiani*, lies under the throat in the fore part of the neck, and near the firſt pair of the neck; it ariſes nervous from the ligaments of the vertebra of the neck, and is inſerted into the baſis of the head, which it turns in like manner as the former.

The muſcles of the forehead have their original from the upper parts of the forehead and ſkull, near the coronal future; and, being ſpread out upon the bone thereof, they end at the eye-brows, that they might lift them up, being ſevered in the midſt of the forehead, right above the noſe; but knit at the ſides to the temporal muſcles.

The muſcles of the occiput, or hind part of the head, are rather membranes, which draw backwards the ſkin of the head, in ſuch perſons as have the ſkin moveable.

The two eye-lids are moved by four muſcles. The firſt is the *frontalis*, which is ſtraight, belonging to the upper eye-lid, to lift up the brow. The ſecond is the *muſculus ciliaris primus*, which compaſſes about each of the eye-lids. The third is the *muſculus ciliaris ſecundus*, which is drawn out under the eye-lids, and ariſing from the circumference of the *orbita*, or ſocket of the eye; the uſe of theſe *ciliares* is to ſhut the eye-lids. The fourth is *orbicularis major*; it is of a finger's breadth; encompaſſes the ſurface of the *orbita*, or ſocket; and, being placed under each eye-lid, and reaching as far as the eye-brow, it cloſely ſhuts the eye-lids, by lifting up the lower, and drawing down the eye-brow.

The eye hath ſix muſcles, of which four are ſtraight and two oblique or circular; they are all ſeated within the cavity of the ſkull, and accompany the optic nerve. The firſt muſcle is called *attolens* or *ſuperbus*; it is the upper and thicker, and is the lifter

lifter-up of the eye, being the proud or ſcornful muſcle. The ſecond is called *deprimens* (the depreſſer) and *muſculus humilis;* it is placed oppoſite to the other, and draws the eyes downwards towards the cheeks. The third is called *abducens*, the drawer-to; alſo *lectorius*, the reading-muſcle, becauſe it moves the eye inwards towards the noſe. The fourth is called abducens, the drawer-from, becauſe it draws the eye to the outward corner; it is alſo termed the *indignatorius*, as being the muſcle of indignation. All theſe four muſcles have the ſame original, progreſs, and end; the beginning of them all is acute, near the hole where the optic nerve enters into the ſocket of the eye, from the membrane whereof they ariſe; their belly is fleſhy and round, and their end a very ſmall tendon: by all theſe four acting together, the eye is kept from ſtirring. The fifth muſcle, called *obliquus major*, or *ſuperior*, ariſes from a common beginning with the firſt four, is carried right out to the inner corner of the eye, where it paſſes out and aſcends in a right angle to the upper ſide of the cornea: this muſcle is the ſmalleſt of all, and has the longeſt tendon, by which it wheels the eye about unto the inner corner. The ſixth muſcle, called *obliquus internus minor et inferior*, is a ſhort, lean, round, and oblique, muſcle, ſeated between the eyes and tendons of the ſecond and third muſcle: it ſprings from the lower and almoſt outward part of the orbit of the eye, and aſcending by the outward corner to the upper part of the eye, is inſerted into the *cornea* by the region of the *iris*. It whirls about the eye obliquely downwards to its external or outward corner.

The muſcles of the external part of the ear are four pair: of the internal part, two pair; but in moſt people the ears are immoveable, becauſe of the ſmallneſs of the muſcles, and little need of their motion. Of the four firſt muſcles, three are common with other parts; the fourth is proper to itſelf. The firſt muſcle is called *deprimens*, common to the ear and each lip, and is a part of the firſt muſcle which moves the cheek and ſkin of the face, and is called *quadratus*, the ſquare muſcle, very thin and broad, and is implanted into the root of the ear, and pulls it down. The ſecond is called *antrorſum ducens*, or the drawer-forwards; it is a part of the frontal muſcle, which is carried above the temporal muſcle, and is inſerted into the upper part of the ear. The third muſcle is called *retrorſum ducens*, or *abducens ad poſteriora*, the drawer-back, and ariſes from a part of the occipital muſcle, above the *proceſſus mammillaris*, with a narrow beginning, from whence, growing broader, it is carried downwards tranſverſely, and inſerted into the hinder part of the ear. The fourth muſcle is called *triparitus*, or *attolens*, the lifter-up; it ariſes from the *proceſſus mammillaris*, and being broad it grows narrow by little and little, till at laſt it ends in a tendon, and is inſerted into the root of the ear. This is the only proper muſcle to the ear, and is rather three-fold, becauſe it has three inſertions, though all ſpring from

from one place. The fifth muſcle which belongs to the internal part of the ear is called *externus;* it is very ſmall, ſpringing from the ſkin and membrane which cover the paſſage of the ear; then, becoming fleſhy, it paſſeth by a ſhort tendon to the outward part of the *tympanum*, and is inſerted about the centre of it. The ſixth muſcle which belongs to the internal part of the ear, is called *internus;* it is ſmall, and placed within the *os petroſum*, with a double tendon, one part of which is fixed to the higher proceſs of the *malleolus*, or hammer, the other to its neck. It ariſes from the baſis of the wedge-like bone, then becomes ſomewhat fleſhy, afterwards narrower, and ends in a double tendon. Its uſe is to draw the head of the hammer obliquely inward.

The noſe has eight muſcles, or four pair, eſpecially in large-noſed people; but they are ſmall, becauſe the motion of the noſe is little. The firſt pair are called *openers*, or wideners; they are fleſhy, ariſe from the cheek-bone near the muſcle of the lips and ſides of the noſe; they are inſerted partly into a part of the upper lip, partly into the lower wing, and end in the top of the noſe. The ſecond pair are called *erectores*, or *aperientes*, openers: they are moſtly triangular, and with a ſharp and fleſhy beginning ſpring from the ſuture of the forehead by the *foramen lachrymale*, under the tear-glandule, and, cleaving to the bone, are outwardly inſerted and carried to the *pinnæ*, wings, or ſides of the noſe. The third pair are called *conſtringentes*, or pulling together: they are little, ariſe fleſhy about the roots of the *pinnæ*, are carried along tranſverſely, and inſerted into the corners of the wings; their uſe is a little to ſhut the noſtrils. The fourth pair are called *deprimentes:* theſe are exceeding firm, and membranous, lie hid under the coat of the noſtrils in the inner part: they ariſe from the extremity of the *os naſi*, and are implanted into the *pinnæ*, or wings: their uſe is to depreſs the noſe, or pull it downwards.

The muſcles common to both cheeks and lips are, 1. *Zygomaticus*, or *quadratus detrahens:* it is a thin muſcle like a membrane, interlaced with fleſhy fibres. It ariſes from the *vertebræ* of the neck, in the outward ſide, and, aſcending up by the oblique fibres of the face, is implanted in the chin, and terminated in the meeting of the two lips: this pair draws the lips backwards. 2. *Buccinator*, the trumpeter, or cheek-driver or mover: this pair lieth under the former in the upper part of it; and makes all that part of the cheek which is blown up when a trumpet is ſounded. It ariſes from the top of the gums near the fartheſt grinders, and ends in each lip. The muſcles proper to the lips, are either proper to each lip, or common to both. The upper lip has two pair of muſcles proper to it; the lower has but one. The firſt pair is *attolens ſurſum trahens*, which draws the lip upwards: it ſprings from the corner between the eyes and the noſe, and is inſerted into the ſubſtance of the upper lip.

The ſecond pair, called *deorſum movens*, ariſes from the upper jaw-bone, juſt in the cavity of the cheeks, under the ſocket of the eye, thin, but broad and fleſhy. The third pair, called *deorſum trahens*, proper to the lower lip only, ariſes from the middle of the chin, with a broad beginning, and aſcends directly to the middle of the lower lip, which it moves upwards. The muſcles common or belonging to both lips are alſo three pair: Firſt, *oblique ſurſum trahens*, that which obliquely draws upwards. The ſecond pair common is *oblique deorſum trahens*, or *deprimens*, moving the lips obliquely downwards. The third, common to both lips, is circular, encompaſſing and conſtituting the whole mouth, making the proper ſubſtance of the lips: by help whereof, the mouth is purſed up, or drawn together.

The muſcles of the lower jaw are in number twelve, viz. ſix pair, being ſix on either ſide. 1. *Temporalis, crotaphites*, the temporal muſcle, ſo called from its ſituation, becauſe it poſſeſſes the cavities of the temples: it is the greateſt of all the jaw-muſcles, being very firm and ſtrong; it runs along under the *os zygoma*, and is by a very ſtrong and nervous tendon inſerted into the ſharp proceſs of the jaw-bone. Its uſe is forcibly to pull up the lower jaw, and to ſhut the mouth. 2. *Maſſeter*, the chewing-muſcle, or firſt chewer: it is placed in the cheeks, and ariſes from a double head. It is inſerted into the inferior jaw-bone, by a very broad and ſtrong connection. 3. *Alare externum*, the outward wing-muſcle. It ariſes from the *os ſphænoides* and the external *proceſſus alaris*, with a beginning partly nervous and partly fleſhy, and is inſerted into the neck of the lower jaw-bone, and in the inner ſeat of the head. Its uſe is to move forward and thruſt out. 4. *Maſſeter internus*, the other chewer, is thick and ſhort, and is implanted into the inner and hinder part of the jaw, with a broad and ſtrong tendon. Its uſe is to aſſiſt the temporal muſcle. 5. *Muſculus latus*, the double-bellied muſcle, or broad muſcle. It is nervous in the middle, and fleſhy at the ends, and is inſerted into the chin, under the bending of the jaw, faſtened to a ligament, leſt it ſhould go too far back. Its uſe is to draw the jaw downwards to open the mouth. 6. *Muſculus latus*, the broad or broadeſt muſcle. It ariſes from the upper part of the ſternum, the clavicula, and ſhoulder-point, and, covering the whole neck and face, it cleaves firmly to the inferior jaw, and is fixed in the middle of the chin. The four laſt muſcles draw the jaw upwards, and are exceeding ſtrong; the laſt two only draw it downwards, becauſe it would be apt to depreſs itſelf.

The muſcles of the *os hyoides*, or tongue-bone, which is the foundation of the tongue, are in number four pair. 1. *Sterno-hyoides:* it ariſes from the inner but upper part of the ſternum, and reſting upon the windpipe lies concealed in the fore part under the ſkin. 2. *Genio-hyoides*, which ariſes from the inner part of the chin, fleſhy

fleſhy, broad, ſhort, and is inſerted into the middle or hollow of the *os hyoides*: Third, *Stylocerato-hyoides*: it ariſes from the root of the *proceſſus ſtyloides*, being lean, round, and ſeated under the chin. 4. *Ceraca hyoides*: it ariſes, at the firſt, ſmall, lean, and long, from the upper ſide of the *ſcapula*, becomes fleſhy about the neck, and, paſſing under the levator of the ſhoulder-blade, is inſerted into the point of the *hyoides*. This pair is long, and has two bellies, being extenuated in the middle like a tendon.

The muſcles moving the tongue are in number five pair: 1. *Styloglofſum*, ariſing from the outſide of the *appendix ſtyloides*, and ending with tranſverſe fibres, in both ſides of the tongue; it moves the tongue inwards; and, by reaſon of the interwoven fibres, they lift the tongue upwards, if they act both together; or upwards only on one ſide, if only one acts. 2. *Myloglofſum*, ariſing from the ſides of the lower jaw, at the roots of the grinding teeth, and ending under the baſis of the tongue in the ligament: when both act, they move the tongue to the palate and upper teeth; but when one acts the tongue is moved obliquely upwards. 3. *Genioglofſum*, ariſing inwardly from the middle of the chin, and terminating almoſt in the middle of the tongue inwardly. Its uſe is to thruſt the tongue out of the mouth, and alſo to draw it in again, ſo that it ſeems to perform contrary actions. 4. *Hyp-ſilogloſſum*, ariſing fleſhy out of the upper and middle region of the os hyoides, runs along according to the length of the tongue; and is terminated into the middle of it: this pair draws the tongue inward. 5. *Ceratogloſſum*, which ariſes from the upper horns of the hyoides, and is obliquely inſerted into the ſides of the tongue near the root thereof. It moves the tongue downward towards the inward parts, when both act; but to the right or left ſide, if only one be contracted.

The muſcles of the *larynx*, or windpipe, are either common or proper; the common are two pair, *ſternothyroides* and *hyothyroides*. 1. *Sternothyroides* ariſes from the inner ſide of the ſternum, runs along the larynx, and is inſerted beneath into the ſides of the ſcutiformis, or ſhield-faſtened griſtle. This ſtraitens the chink of the larynx, by drawing down the ſcutiformis. *Hyothyroides*, ariſes from the lower ſide of the os hyoides, being broad and fleſhy, touches the ſcutiformis, and is inſerted into its baſis; it widens the chink, by lifting up the ſcutiformis. Theſe common muſcles are implanted into the larynx, but do not ariſe therefrom. The proper muſcles are five pair: 1. *Thyrocrycoides*, ariſes from the loweſt part of the ſcutiformis, and ends at the annularis, and is inſerted into the lateral parts of the thyroides. 2. *Crycothyroides* riſes from the hinder ſide of the annularis, fleſhy; and is inſerted into the lower part of the *glottalis*, with a nervous end, opening the larynx, by drawing aſunder the two griſtles called *arytenoides*. 3. *Cryco-arytenoides laterale*,

laterale, ſprings above from the ſides of the annularis, and is implanted at the ſides of the glottalis into the joint, and opens the larynx with the ſame oblique motion of the griſtles. 4. *Thyroarytenoides*, or *glottoides;* this helps the former, and, ſpringing from the inner and fore part of the thyroides, is terminated into the lateral part or ſides of the glottalis, or arytenoides, which ſhuts the larynx by a ſtrait paſſage; if this pair is inflamed in a quinſey, it is mortal, becauſe it exactly ſhuts the chink. 5. *Arytenoides* is a round muſcle, compaſſing the ewer-like cartilage; it ariſes from the hinder line of the guttalis, and, being carried along with tranſverſe fibres, is inſerted into the ſides thereof.

The *uvula* has two pair of muſcles, two on either ſide, viz. an external and internal pair. 1. *Ptery-ſtaphylinus externus* riſes from the upper jaw, and under the laſt grinding tooth, ends in a ſmall tendon, which paſſes through a chink on the upper ſide of the pterygoides. 2. *Ptery-ſtaphilinus internus* proceeds from the lower part of the internal wing of the pterygoides, and, aſcending according to the longitude of the wing, is inſerted in like manner into the uvula.

The *pharynx* or throat, which is the beginning of the *œſophagus* or gullet, has ſeven muſcles belonging to it, viz. three pair, and one without a fellow. 1. *Sphæropharingæus*, which ſprings from the ſharp point of the *ſphænoideus*, and, paſſing downwards, is inſerted into the lateral parts of the *pharynx* or throat, to pull up the mouth of the ſtomach, that it may receive the meat. 2. *Chepalepharyngæus*, which ſprings from the part where the head is joined to the neck, and, running down, is ſpread about the pharynx or œſophagus, ſeeming to make the membrane of it. 3. *Stylopharingæus*, which ſprings from the ſtyloid proceſs, and is inſerted into the ſides of the pharynx, both to dilate and amplify it. 4. *Œſophagus*, the muſcle without a fellow, being only a ſphincter-like muſcle, encompaſſing the gullet. It ſprings from one ſide of the thyroides, and, circularly encompaſſing the hinder part of the pharynx, is tied to both ſides of the thyroides, to contract the mouth of the ſtomach as the ſphincter doth the anus.

The muſcles of the neck are four pair. The two firſt pair, to wit, *muſculus longus* and *muſculus ſcalenus*, bend the neck; the two latter pair, viz. *muſculus tranſverſalis* and *muſculus ſpinatus*, extend it. 1. *Longus*, lies under the *œſophagus* or gullet, ſprings from the fifth vertebra of the breaſt, with a beginning fleſhy and ſharp, aſcends laterally, annexed to all the bodies of the vertebræ, terminating in the extuberant proceſs of the vertebræ, with an acute tendon, and ſometimes is inſerted into the occiput near its great hole. 2. *Scalenus*, ariſes fleſhy at the ſide of the neck, from the firſt rib, and is inſerted inwardly, by oblique fibres, into all the tranſverſe proceſſes of the vertebræ of the neck: through this pair the veins and arteries enter into the arm. 3. *Tranſverſalis*, ariſing from the tranſverſe eminences or proceſſes of the ſix upper-

moſt vertebra of the breaſt, and is inſerted into all the external tranſverſe eminences of the neck. 4. *Spinatus*, ariſing from the roots of the ſeven uppermoſt vertebræ of the breaſt, five of the neck, and is inſerted into the ſpine or point of the ſecond vertebra of the neck.

The muſcles of the breaſt or *thorax* are in number ſixteen, viz. eight on either ſide, of which the firſt five widen or lift up the breaſt; the laſt three contract it: to theſe add, as a ninth, one peculiar muſcle, called *diaphragma*, or the midriff. 1. *Subclavius:* it ariſes from the inner part of the *clavicula*, is of the fleſhy ſubſtance, and is drawn upwards and outwards, and inſerted into the upper part of the firſt rib. 2. *Serratus major*, the greater ſaw-like muſcle; it reaches from the inner baſis of the ſcapula unto ſix and ſometimes ſeven of the ribs. 3. *Serratus poſticus ſuperior*, which grows out of the ſharp points or ſpines of the three lower vertebræ of the neck, and the firſt of the back, and is inſerted into the three upper ribs, and ſometimes into the fourth. 4. *Muſculi intercoſtales externi:* theſe are eleven pair in number, but perform the office of one muſcle only; are interwoven, totally fleſhy, and ariſe from the lower parts of the upper ribs; and, deſcending obliquely towards the back parts, are inſerted into the upper parts of the lower ribs, terminating on the cartilages. 5. *Triangularis:* it is ſmall and thin in lean perſons, ſprings out of the inner and lower part of the ſternum, and is inſerted into the cartilages of the lower ribs, as far as the third or fourth of the baſtard ribs. 6. *Sacrolumbus*, which ſprings from the *os ſacrum*, and the ſpinous proceſſes of the loins, and is inſerted into the upper ribs near their roots; beſtowing upon each rib a double tendon, one external, the other internal. 7. *Serratus poſticus inferior:* it is oppoſite to the ſuperior; and both of them, by a broad and membranous tendon, ſo grow together, that they ſerve inſtead of a band to keep the hinder muſcle of the back-bone together: it grows out of the ſpines or proceſſes of the three loweſt vertebræ of the back, and firſt of the loins, and is terminated into three or four of the lower ribs. 8. *Muſculi intercoſtales interni:* theſe are the ſame in number and place with the *externi*, and lie directly under them; they are carried obliquely from the nether rib to the uppermoſt, and have fibres contrary to thoſe of the external, croſſwiſe interſected. 9. *Diaphragma* or midriff, called alſo *precordia*, becauſe it is ſtretched out before the heart; and *phrenes*, becauſe, being affected, the mind and ſenſes are diſturbed, by reaſon of the conſent it has with the brain: ſo that, when the midriff is inflamed, a phrenzy is cauſed. It is one in number, an inſtrument of free motion, and an admirable kind of muſcle, both in regard of its compoſition and continual action or motion, ſerving alſo as a wall of partition to ſever the vital and natural parts one from another. The head of it is in the nervous centre, but the tail in the circumference of the lower ſhort ribs, from whence it ariſes, and through which it is ob-

liquely drawn about, as far as to the vertebræ of the loins. It has a double membrane for ſtrength-ſake: the upper is from the pleura, to which the pericardium is firmly faſtened, and ſometimes alſo the lobes of the lungs; the lower is from the peritonæum.

The muſcles of the back and loins are four pair; the firſt pair is *quadratum*, adhering to the tranſverſe proceſſes of the vertebra of the loins, ariſing inwardly from the os ilium and os ſacrum, broad and fleſhy. Its uſe is to bend the vertebra of the loins. 2. *Longiſſimum*, ariſes with an acute and ſtrong tendon from the extremity of the os ſacrum, the vertebra of the loins, and os ilii, having the ſame beginning with the ſacrolumbus; to the vertebra of the back it gives tendons like claſps, terminating ſometimes in the firſt vertebra of the breaſt, and ſometimes at the mamillary proceſſes. 3. *Sacrum* ariſes from the os ſacrum behind, being fleſhy, and terminates in the twelfth vertebra of the breaſt. 4. *Semiſpinatum*, which ariſes where the former ends, and embracing all the ſpines of the vertebra of the breaſt, and giving them tendons, it terminates in the ſpine of the firſt vertebra of the breaſt. The uſes of theſe three laſt are to extend the breaſt, loins, and their vertebræ: if all the eight muſcles act, they hold the back ſtraight, and as it were uphold a man.

The muſcles of the abdomen or belly cover the lower belly, and have their names partly from their ſituation and riſe, and partly from their figure. They are in number ten, or five pair, whoſe principal uſes are to impel the internal parts, and to move the os ſacrum and ilium; or to make a proper retention and compreſſion of the parts in the belly: to provoke voiding the excrements, or help the expulſive faculty of the womb and bladder. Their temperament is hot and moiſt; to cheriſh natural heat and concoction; they are moderately thick, to defend the parts, and, when very fleſhy, they add much to the comelineſs of the body. The firſt pair is *obliquus deſcendens*, ſo called by reaſon of its fibres, which deſcend obliquely; it riſes in the breaſt from the lower part of the ſixth, ſeventh, and eighth, ribs, and terminates in the white line by a broad tendon. 2. *Obliquus aſcendens* is ſituated next the former, in a triangular figure, riſing fleſhy from the rib of the os ilii, but membranous from the ſharp proceſſes of the vertebræ of the loins, and from the ſharp points of the os ſacrum; it aſcends obliquely; and terminates in a double tendon, embracing the muſculus rectus like a ſheath; but the duplicity appears only above the navel, for below it is united inſeparably. 3. *Muſculus rectus;* its original is fleſhy, from the ſternum on each ſide the ſword-like cartilage, and from the cartilages of the four baſtard ribs: it has three nervous inſertions which ſtrengthen it; and veins which run along the longitude of it, viz. the *mammariæ deſcendentes* from the breaſts, and the *epi-*

gaſtricæ aſcendentes from the womb in women, but from the vena cava in men; which meet about the middle of this muſcle, extending as far as the region of the navel, and are there terminated. Theſe two veins are joined by *anaſtomoſis*, from whence the conſent of the womb with the breaſts is cauſed; which, being handled, excites women to venery. *Muſculi pyramidales*, the pyramidal muſcles, lie upon the extremities of the muſculi recti, and riſe with a fleſhy beginning from the external ſhare-bone, where all the nerves enter; and, growing narrower by degrees, they terminate with a ſharp point in the tendon of the tranſverſe muſcle. Their office is to compreſs the bladder, and therefore they ſend their tendons, between the muſculi recti, into that part of the peritonæum which includes the bladder. 5. *Muſculi tranſverſi*, the croſs muſcles, ariſing from a certain ligament which ſprings out of the os ſacrum; and, terminating by a broad membranous tendon in the linea alba, ſtick extremely faſt to the peritonæum every where except about the pubis. Their proper uſe is to compreſs the colon.

The muſcles of the *os ilium* and *ſacrum* are moved forward in coition by the *muſculi recti* and *obliqui deſcendentes* of the belly, the breaſt reſting and the thigh remaining unmoved. They are moved backwards by the *muſculus ſacer* and *ſemiſpinatus*, which ariſe from the vertebræ of the back, &c.

The muſcles of the *penis* or yard are two pair; the firſt pair is called *erector*, or *director*; the latter, *accelerator*. 1. *Erector*, or *penem erigens*, is a ſhort and thick pair, ariſing nervous under the beginning of the yard, from the innermoſt bunching-out of the *iſchium*, and, being knit unto the ligament of the yard, growing fleſhy, it reaches ſide-ways as far as the middle of the body thereof: their uſes are to erect and keep up the yard in coition. 2. *Muſculi acceleratores*, or *par urethrum dilatans*, are longer than the former, but thinner or leaner; they ariſe both from the ſphincter of the anus and internal tuberoſity of the iſchium or huckle-bone, are ſpread out under the urethra, carried beneath, and inſerted into the ſides thereof, about its middle: their uſe is to dilate or widen the urethra both for the paſſage of the urine and for the ſeed in coition. Theſe are the muſcles where an apertion is commonly made in cutting for the ſtone.

The muſcles of the *clitoris*, proper to female ſubjects, are like thoſe in a man's yard, the ſame in number, and to the ſame intent. The two uppermoſt, being round, riſe from the internal knob of the iſchium, and, being placed by the lateral ligaments, cauſe the erection of it. The two lower are broad and ſmooth, and proceed from the ſphincter of the anus.

The muſcles of the teſticles are either proper or common. The proper muſcles are only the pair called *cremaſter*, ariſing from a ſtrong ligament in the os pubis, where the tranſverſe muſcles of the belly end, of which they ſeem to be parts; they

they paſs through the production of the peritonæum, which they compaſs nearly about, and paſs with the ſpermatic veſſels to the ſtones; they are ſhorter in women than in men, and are placed above the production of the peritonæum: their uſe is to ſuſtain or hold up the ſtones. The common muſcle is the membrane of the ſcrotum, called *dartos*, being a continuation of the fleſhy membrane; and this muſculous membrane ſuſpends both teſticles.

The bladder has but one muſcle, called *ſphincter*, which encompaſſes the neck of the bladder, in an orbicular form, as alſo do the fibres. It is fleſhy, drawn back over the *proſtatæ*, or auxiliary teſticles; it ejaculates the ſeed in coition. In women it reaches to the hole by which the urine paſſes, and ſeems to form it.

The muſcles of the *anus*, or fundament, are either the *ſphincter* or the *levatores*; the *ſphincter* muſcle, called *anti-conſtrictor*, the ſhutter or contractor, is fleſhy, (and without the ſtraight gut two inches broad;) ariſes from the lower vertebra of the os ſacrum; and is encompaſſed with the tranſverſe fibres all along the anus: it is faſtened on the fore part to the paſſage of the bladder by fibrous couplings; to the yard, to whoſe muſcles it gives beginning; and to the neck of the womb: on the hinder part it is inſerted into the *coccyx*, or crupper bone, and at the ſides it is faſtened into the *os coxæ*. The *muſculi levatores* are four, or two pair: one pair of which are broad, and one narrow. *Muſculi levatores lati*, ariſe from the os ſacrum and os ilium, and are inſerted into the larger ſphincter. *Muſculi levatores tenues*, the narrow muſcles: of which the foremoſt ariſes from the tranſverſe ligament; the hindermoſt from the *coccyx*, whereunto they are terminated.

The muſcles of the ſhoulder-blade, or *ſcapula*, are four, according to the number of its motions, viz. forward and backward, upward and downward: 1. *Serratus minor*, the ſmaller ſaw-like muſcle, ariſing from the four upper ribs, and aſcending obliquely upwards, with an end partly fleſhy, partly tendinous, and is inſerted into the ſcapula; its uſe is to draw forwards into the breaſt. 2. *Trapezius cuculares*, ariſes fleſhy from the hinder part of the head towards the ear, from whence it deſcends to the eighth vertebra of the breaſt, and, from thence growing by ſmall degrees, it is inſerted into the back-bone, top of the ſhoulder, and clavicula; it moves the ſcapula variouſly, according to its oblique fibres. 3. *Rhomboides*, or diamond-like muſcle, ſituate under the *cucularis*, thin and broad, ariſes from the three lower vertebræ of the neck and the three upper vertebræ of the breaſt, and in the ſame breadth is inſerted into the external baſis of the ſcapula: it draws back a little obliquely upwards. 4. *Levator muſculus patientiæ*, ariſes from the tranſverſe apophyſis of the ſecond, third, and fourth, vertebræ of the neck, and is inſerted into the higher and lower corners of the ſcapula; its uſe is to lift the ſhoulder up.

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The arm is variouſly moved, therefore has it many muſcles, to wit, nine in number. 1. *Pectoralis* is great and fleſhy, ariſing from the whole breaſt-bone, and griſtle thereof, the ſternum, and above half the clavicula, and is by a ſharp tendon inſerted into the ſhoulder-bone, between the deltoides and the biceps. 2. *Deltoides*, from likeneſs to the letter Δ, ſprings from the middle of the clavicula, and the acromium, and is inſerted into the middle of the arm or ſhoulder bone. 3. *Latiſſimus*, ſprings from the vertebræ of the loins, and of nine vertebræ of the back, and is inſerted into a part of the arm, between the pectoral and round muſcle, with a ſtrong, ſhort, and broad, tendon: this with its fellow of the other arm covers almoſt the whole back: it is called *ani ſcalptor*, becauſe it draws the arm backwards and downwards. 4. *Rotundus major* is fleſhy, thicker and rounder than the reſt, obliquely ſeated behind under the axilla, and ariſes from the lower rib of the ſcapula, which, aſcending a little with its tendon, ſhort, broad, and ſtrong, is inſerted (with the pectoral muſcle) into the middle of the arm. 5. *Rotundus minor*, is ſhort, round, quite fleſhy, and ariſes with a ſharp beginning out of the lower corner of the ſcapula, terminating with an acute end in that ligament, with which the head of the ſhoulder is involved. 6. *Infra-ſpinatus*, ariſes in the middle between the ſmaller round muſcle and the ſpina, covers the whole external bunching part of the ſcapula; then, becoming more narrow, it is inſerted into the neck of the arm, or ſhoulder. 7. *Supra-ſpinatus*, is fleſhy, and ariſes out of the ſpine of the upper rib of the ſcapula; then, being conveyed under the acromium, it is inſerted with a broad and ſtrong tendon into the neck of the arm, at the ligament of the joint. 8. *Subſcapularis*, or *immerſus*, is very fleſhy, and paſſes between the ſcapula and ribs, poſſeſſing the hollow and inward part of the ſhoulder-blade; then is carried out, and inſerted, with a broad tendon, internally in the ſecond ligament of the humerus. 9. *Coracoides*, is inſerted into the inner part of the ſhoulder, about the middle of the arm, by the tendon of the deltoides. Its beginning is nervous and ſhort: and its belly has a hole in it (whence its name) to give a paſſage to the nerves running to the muſcles of the cubit.

The *cubit* or elbow has two bones, the *ulna* and *radius*: the *ulna* ſerves for flexion and extenſion; but the *radius* for the pronation and ſupination. The *ulna* is bended by two muſcles, the *biceps* and *brachieus internus*; and extended by four, viz. *longus*, *brevis*, *cubitalis*, and *brachieus externus*. 1. *Biceps* ariſes from the ſcapular, round and tendinous, which is inſerted into the inner part of the radius. 2. *Brachieus internus* is placed beneath the biceps, ſmaller than the former, and ariſing from the middle of the os brachii, and is inſerted before into the common beginning of the radius and ulna. 3. *Longus* or *extendens primus*, ariſes from the lower rib of the ſhoulder-blade, near the neck, with a double begin-

ning, and is terminated in the elbow. 4. *Brevis extendens ſecundus*, ſprings from the hinder neck of the arm, mixed with the foregoing muſcle, clothes the humeri, and terminates on the outſide of the elbow. 5. *Anconeus extendens tertius*, is ſituate in the bending of the cubit, on the hinder ſide; it ariſes out of the lower and hinder part of the arm, between the ulna and radius, and is inſerted by a nervous tendon into the ſide of the cubit. 6. *Brachieus externus*, being ſpread out upon the outſide of the brachium: it is a fleſhy lump, made of the two former, and is placed under them, being inſerted into the ſame place.

The radius has four muſcles, two of which are *pronatores*, or pullers down; and two *ſupinatores*, or pullers up. 1. *Pronator ſuperior* ariſes from the inner apophyſis of the arm, by a ſtrong and fleſhy beginning, and ends with a membranous tendon, obliquely running into the middle of the radius. 2. *Pronator inferior*, from the lower part of the cubit ulna, unto the lower part of the radius, and is there inſerted. 3. *Supinator longior*, from the top of the brachium, above the external knob, and, being drawn out upon the radius, is inſerted on the inſide of the lower epiphyſis thereof. 4. *Supinator brevior*, ſprings from the outward apophyſis of the arm, fleſhy within, membranous without, and is inſerted nearly into the middle of the radius.

To the wriſt belong four muſcles, of which the two firſt bend it, and the latter two extend it. 1. *Cubiteus internus*, the firſt bender, ariſes from the internal apophyſis of the arm, and being ſtretched over the elbow is inſerted with a thick tendon into the fourth bone of the wriſt. 2. *Radieus internus*, the ſecond bender, is drawn along the radius, ariſes from the beginning with the former, and terminates in the firſt bone of the metacarpium, under the fore-finger. 3. *Radieus externus*, ariſes with a broad beginning, from the external apophyſis of the arm, and terminates in a double tendon at the firſt and ſecond bones of the os metacarpi. 4. *Cubiteus externus* ariſes from the ſame beginning, through the length of the cubit; when it comes to the wriſt, it becomes a ſtrong round tendon, and is inſerted into the upper part of the fourth bone of the metacordus, under the little finger.

In the palm or hollow of the hand are two muſcles, called *palmares*, of which the one is long, the other ſhort. 1. *Palmaris longus*, ariſes from the inward apophyſis of the arm, with a round and tendinous beginning, is ſpread into the hollow of the hand, cleaving exceeding faſt to the ſkin, where, under the ſkin, in the hollow of the palm, is a broad tendon, giving exquiſite ſenſe to that part; it is terminated into the firſt intervals between the joints of the fingers. 2. *Palmares brevis*, is a certain four-ſquare fleſhy ſubſtance, ſpringing from the membrana carnoſa, from whence it is carried under the former muſcle to the middle of the palm of the hand, and is inſerted into the outſide of that tendon, which bears the little finger from the reſt.

The thumb is bent by two muſcles, extended by two, and drawn ſide-ways by ſix. *Flexor primus*, ariſing from the upper part of the radius, is inſerted into one of the joints. 2. *Flexor ſecundus*, ariſing from the wriſt-bone, is inſerted into the middle of the thumb, and lies wholly under the former. 3. *Extenſor primus*, ariſing out of the upper and outward ſide of the cubit, runs along the radius, is carried beyond the wriſt, and is inſerted into the firſt and ſecond joint of the thumb, by a double and ſometimes triple tendon. 4. *Extenſor alter*, ariſes from the ſame part of the cubit, but lower near the wriſt, and is inſerted into the third joint of the thumb. 5. *Adducens primus*, is joined unto and ſeated beneath the thenar, ariſing out of the three lower bones of the metacarpium, and is inſerted into the ſecond joint of the thumb; this draws the thumb to the fore-finger. 6. *Adducens ſecundus*, the ſecond drawer of the thumb to the fore-finger: it ariſes out of the metacarpium, and is inſerted as the other. 7. *Adducens tertius*, drawing alſo the thumb to the fore-finger, ariſes out of the external ſide of the metacarpium, which ſuſtains the thumb, and is inſerted in the firſt joint. 8. *Adducens primus*, or *thenar*, the firſt drawer away, ariſes from the inſide of the wriſt, and is inſerted into the ſecond joint of the thumb, to draw it from the fingers. 9, 10. *Abducens ſecundus* and *tertius*, ariſe and are inſerted as the former, to draw the thumb alſo from the fore-finger.

The fingers are bent, extended, and moved laterally, for the performance of which are ſeventeen muſcles; they are as follows: *Sublimus*, or *perforatus*, ariſes from the inner apophyſis of the arm; it is divided into four tendons incloſed in a ligament as it were in a ring, which are inſerted into the ſecond jointing of the fingers, a cleft being firſt made, through which the tendons of the following muſcles paſs. *Profundus* or *perforans*, is ſpread out under the former, and is inſerted, through the clefts of the former tendons, into the third jointings of the fingers: it ariſes from the upper parts of the ulna or radius under the joint, and is divided into four tendons. *Hypothenar digita minimi proprius auricularis*, the muſcle proper to the little finger; it ariſes in the hollow of the hand, from the third and fourth wriſt-bones of the ſecond rank, and is inſerted externally into the ſide of the firſt joint of the ſaid finger. *Extenſor magnus*, ariſes from the exterior apophyſis of the arm, about the wriſt, and the ring-faſhioned ligament; is divided into four tendons, which end in the lowermoſt joints of the fingers. *Indicator indicis extenſor*; it ariſes from the middle or external part of the cubit or ulna, and is terminated with a double tendon into the ſecond interjointure of the fore-finger. *Auricularis*, the extenſor of the little finger; it ariſes from the upper part of the radius, and, being carried along with the ulna and radius, is externally inſerted into the little finger with a double tendon. *Lumbricales, adducens primus, ſecundus, tertius, quartus*, the four worm-like muſcles; they ariſe from the tendons of the

muſculus

muſculus profundus by the wriſt; and, being drawn out along the ſides of the fingers, are obliquely carried and inſerted into the third joint of every finger. *Abductores interoſſei externi* and *interni*, the drawers from the thumb; they ariſe from the upper parts of the bones of the metacarpium near the wriſt, and in the firſt internodum or ſpace between the joints, with a very ſmall tendon, which, joining with the vermiculares, run along the ſides of the fingers, over the three bones, till they come to the roots of the nails; in the former and upper part whereof, the tendons, being firſt united, are terminated. *Abductor indicis;* it ariſes from the firſt interjointing of the thumb, and is inſerted into the bones of the fore-finger, by which it is drawn from the reſt of the fingers towards the thumb.

The thighs are capable of being bent, extended, drawn to or wheeled inward, or turned about outwards; for the performance of which, they have the following ſixteen muſcles. 1. *Pſoas primus lumbaris*, the firſt loin-muſcle; it ariſes from the vertebræ of the loins, and is inſerted into the fore part of the ſmall trochanter, with a round and ſtrong tendon. 2. *Pſoas minor;* it is ſometimes ſpread over, ſometimes under, the former; its beginning is fleſhy, ſometimes one, two, or three, fingers broad in its middle; its original, with a ſmall and flat tendon, being carried over or under the pſoas, comes to the iliac, and with a very broad and ſtrong tendon is inſerted into the upper brim of the os ilii. 3. *Iliacus muſculus*, riſes out of the internal cavity of the os ilium, is joined by its tendon with the lumbal muſcle, and is terminated between the great and little trochanter. 4. *Muſculus pectineus*, the comb-muſcle, ſprings out of the upper part of the os pubis, and is inſerted with a ſhort tendon into the inner ſide of the thigh. 5. *Triceps primus*, ariſes from the upper jointing of the os pubis, and, paſſing by the inner head of the thigh-bone, is inſerted into the middle of the thigh. 6. *Triceps ſecundus*, ariſes from the loweſt jointing of the os pubis, and, paſſing by the inner head of the thigh, runs along to the end of the thigh. 7. *Triceps tertius*, ariſes from the middle of the os pubis, and is inſerted juſt below the neck of the thigh-bone. Theſe three muſcles many reckon but one, and call it *triceus*, from its three-fold beginning; but, ſo accounted, it is the greateſt of all the muſcles of the body, and often ends in one muſculous tendon, inſerted into the hinder part of the bone. 8. *Gluteus major*, ariſes from the coccyx or crupper, (the ſpine of the ilii and os ſacrum,) and is inſerted into the os femoris, under the great trochanter. 9. *Gluteus medius*, the middlemoſt both in ſituation and magnitude, ariſes from the inner ſide of the ſpine of the os ilii, and is inſerted into the great trocanter with a broad and ſtrong tendon. 10. *Gluteus minimus internus*, ſprings from the back of the os ilii, near the acetabulum, with a broad and ſtrong tendon, and is inſerted into the great trochanter; theſe laſt three make up the fleſhy ſubſtance of the

the buttocks. 11. *Quadrageminus primus*, it ariſes from the lower part of the os ſacrum, and is placed upon the articulation of the thigh, in the hinder part thereof. 12. *Quadrigeminus ſecundus*, ariſes from the tuberoſity of the huckle-bone, and covers the articulation of the thigh, as aforeſaid. 13. *Quadrigeminus tertius*, is contiguous to the former, and ariſes from the ſame part; theſe three laſt are inſerted into the cavity of the great trochanter. 14. *Quadrigeminorum quartus*, is broader and more fleſhy than the other three, being diſtant from the third of the quadrigemini two fingers' breadth; it ſprings from the inner ſide of the apophyſis of the iſchium, or huckle-bone, and is inſerted into the external part of the great trochanter. 15. *Obturator externus* takes up the wide hole between the os pubis and the os iſchii; it ariſes from the outward circle of the os pubis, is circumducted through the neck of the thigh, and carried into the cavity of the great trochanter, under the fourth quadrigeminal muſcle. 16. *Obturator internus* riſes from the inward circle of the os pubis, and by a tripartite tendon is inſerted into the cavity of the great trochanter.

To the legs belong eleven muſcles, viz. 1. *Biceps*, having two heads; the firſt ſprings from the joining of the os pubis, the ſecond from the outward part of the thigh; both of them are inſerted with one tendon into the hinder or inward part of the leg. 2. *Semimembranoſus* ariſes from the ſwelling in the iſchium, and is inſerted into the inner ſide of the leg backwards. 3. *Seminervoſus*, has the ſame original and inſertion with the former, only in the hinder part is carried a little forwards obliquely, before it terminates at the inſide of the leg. 4. *Gracilis* and *gracilis poſticus*, riſes from that line where the hip-bone and ſhare-bones join together, and, deſcending along the inſide of the thigh, is inſerted into the inner part of the leg. 5. *Rectus gracilis* ſprings with an acute tendon out of the outward and lower ſpine of the os ilium, is carried along the thigh, and terminates in the fore part of the leg. 6. *Vaſtus internus* borders upon the rectus gracilis, and ariſes out of the great trochanter, and is inſerted into the leg, a little below the patella on the outſide. 7. *Vaſtus internus* borders as the former on the rectus gracilis, and ariſes out of the root of the ſmall trochanter; and falls into the inner ſide of the leg, a little below the patella. 8. *Crureus*, ariſes out of the thigh-bone between the two trochanters, and, cleaving to the thigh, produces its tendon over the epigonatis unto the fore-part of the leg; the four laſt muſcles are inſerted all into one tendon, which terminates in the beginning of the leg. 9. *Muſculus longus*, is nearly the longeſt of all the muſcles; ariſes from the former ſpine of the os ilii, and deſcends obliquely into the inner and fore part of the leg. 10. *Popliteæus*, it ariſes from the lower and exterior tubercle of the thigh, and is inſerted four-ſquare into the inner and upper part of the leg, obliquely. 11. *Membranoſus faſcia lata*, riſes from the ſpine of the os ilii, runs obliquely into the outward part of the leg, and, with a broad and long tendon, inveſts almoſt all the muſcles of the thigh.

The foot, or inſtep, has eight muſcles. 1. *Tibiæus anticus*, it is faſtened to the leg, and ariſes near the fibula, and, cleaving to the tibia all along, it degenerates into a tendon, which beneath the ring-like ligament of the foot is divided into two tendons. 2. *Peronæus anticus*, joined to the peronæus poſticus, and has its riſe with two heads, one from the middle and external part of the perone or ſmaller focile; the other from the upper epiphyſis of the fibula: theſe, being carried through the chink of the ancle, terminate in a double tendon, the ſmaller of which is carried into the bone of the little toe, the greater running obliquely under the ſole of the foot. 3. *Gemellus externus;* this has two heads; they both riſe from under the ham, the one from the inner, the other from the outer, parts of the end of the thigh-bone, and paſs down the back part of the leg, then become tendinous, and, being united, make one ſtrong, broad, and nervous, tendon, which is inſerted into the heel. 4. *Gemellus internus;* this with the other conſtitutes the ancle, and lies under the former, of a livid colour; it ariſes under the ham, by a ſtrong nervous ſubſtance; having paſſed the middle of the tibia, it becomes narrower and tendinous: it is inſerted into the heel. Theſe make the belly or calf of the leg. 5. *Soleus*, it is a broad and thick muſcle ariſing from the upper and hindermore appendix of the fibulæ; and is inſerted by a tendon into the heel. 6. *Tibiæus poſticus adducens pedem;* it ariſes from the upper part of the tibia, or greater and ſmaller focile, and from the ligament which ties them together, runs along the tibia, and through the cleft of the ancle-bone, where it produces two tendons. 7. *Peronæus poſticus*, it ariſes from the upper but hinder part of the ſmall focile, by a nervous and ſtrong beginning, and, cleaving to the outſide of the perone, it runs down round and fleſhy: it is inſerted, under the ſole of the foot, into the bone ſet before the great toe. 8. *Plantaris* covers the whole ſole of the foot; and ſpringing from the outer part of the thigh-bone under the ham, by a round and fleſhy beginning, paſſing within the leg between the gemelli, it goes thence to the ſole, and is inſerted into the five toes.

The great toe has five muſcles. 1. *Primus*, or *flexor pollicis*, ariſes from the upper part of the fibula, and is inſerted into the third joint of the great toe. 2. *Secundus*, or *extenſor pollicis*, ariſes from the middle of the fibula, or from the outſide of the tibia, where it is ſeparate from the fibula, creeps along the ſurface of the foot, and ends in two tendons, the one of which is inſerted into the upper ſide, the other into the lower ſide of the great toe. 3. *Tertius pollicis, adductor primus*, that which draws the toe inward, and ſprings from the ligament which ties the heel-bone and the taulis, is faſtened inwardly to the bone ſet before the great toe, and by a round tendon is inſerted into the firſt joint of the ſame. 4. *Quartus pollicis, adductor ſecundus*, it ariſes from the ligament of the firſt interjuncture of the little toe; then, becoming fleſhy, runs over the firſt joint of the toes, and with a ſhort

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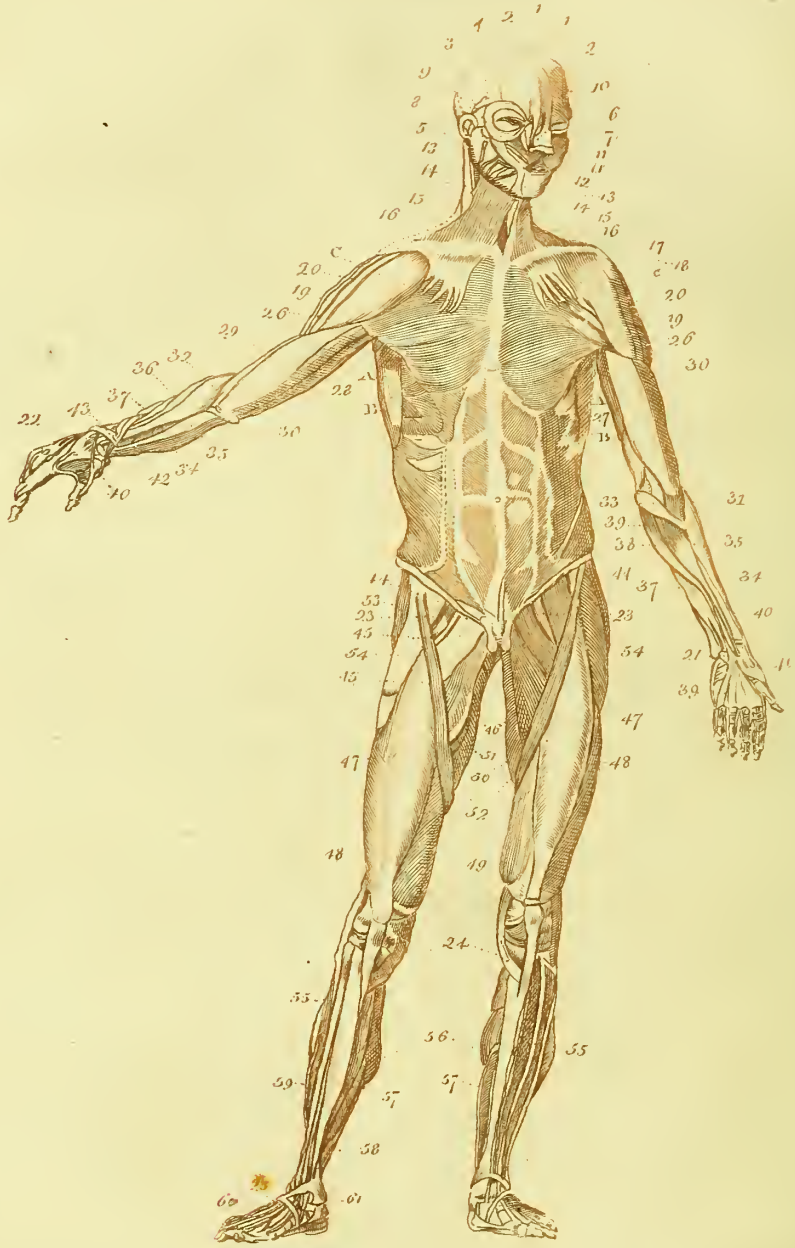


The Muscles of the Human Body.

Plate. I.

and broad tendon is inſerted a little inwards into the firſt joint of the great toe. 5. *Quintus pollicis, abductor ejuſdem;* it ariſes fleſhy, from the inner part of the heel, and is inſerted extrinſically into the firſt bone of the great toe.

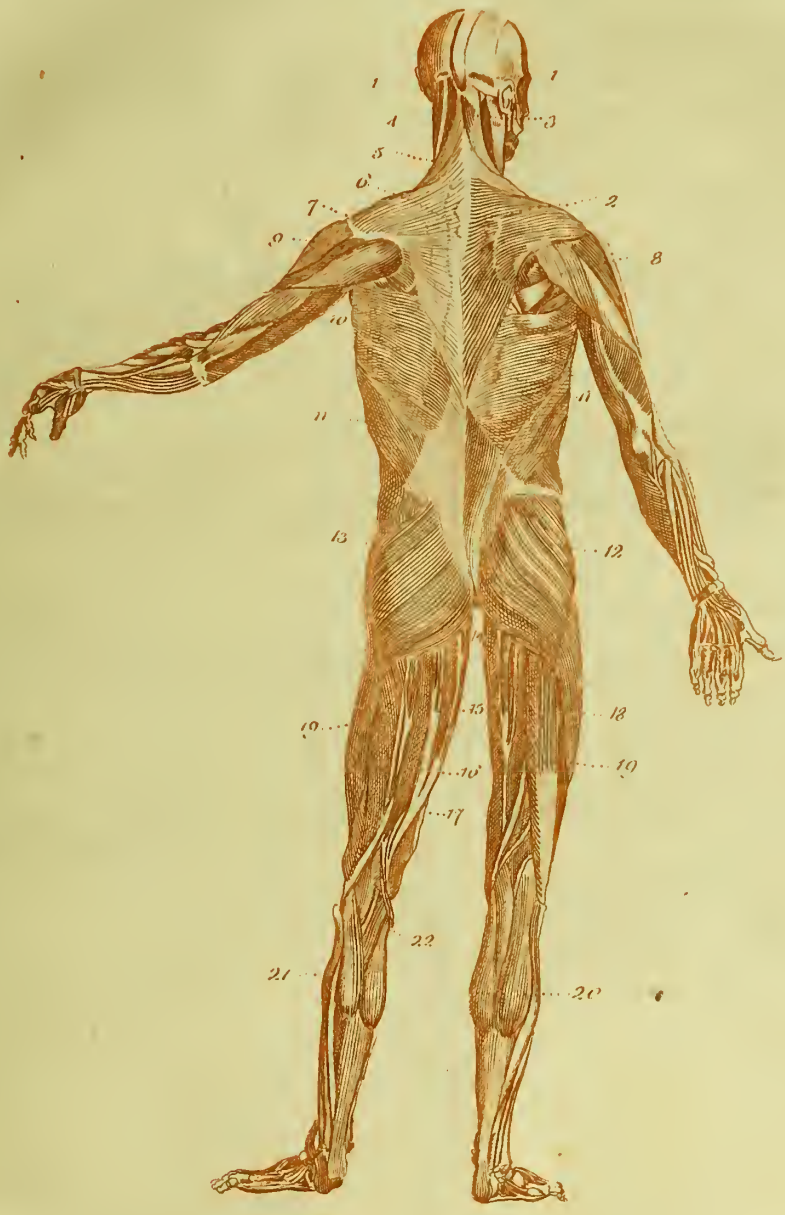
The muſcles of the four little toes are eighteen, having tendons comprehended with a circular and tranſverſe ligament, which encompaſſes them beneath the ancles, juſt as in the wriſt. *Muſculus major*, ariſing from the upper apophyſis of the tibia under the ham, by a long and fleſhy beginning, paſſes under the inner ancle, and by the hollowneſs of the heel goes to the ſole of the foot, where it is divided into four tendons, inſerted into the third and laſt joint of the four toes. *Flexor minor*, lies in the midſt of the ſole of the foot, ariſing from the inner part of the heel-bone, and is divided into four round tendons, which are carried and inſerted into the ſecond articulation of the four toes. *Extenſor longus*, ariſes with a nervous and ſhort beginning from the upper appendix of the tibia, and, cleaving to the ligament which unites the ſociles, runs down to the foot, paſſing firſt under the tranſverſe ligament; then, being divided into four tendons, they are inſerted into the ſecond and third joints of the four toes. *Extenſor brevis*, lies under the former, ariſes from the tranſverſe ligament fleſhy and broad, and is by four tendons inſerted into the firſt joints of the four toes. *Lumbricalis quatuor*, they ariſe from the tendons of the perforans, ſmall and round, and are inſerted by ſo many ſmall tendons into the ſides of the firſt joints of the four toes. *Interoſſei decem*, they ariſe from the bones of the pedium, and are placed between the bones of the foot, filling the void ſpaces of the matapedium, being ten in number, five external, and five internal. They ariſe by the ſides of the bones of the inſtep, the former to the firſt interjointings; the ninth of the interoſſei is the abductor of the great toe; the tenth and laſt is the ſpecial abductor of the little toe.

As to the number of the muſcles in the human body, authors ſtrangely diſagree about it; however they are certainly more than five hundred, the principal whereof are repreſented in the two annexed plates; thoſe conſpicuous in the fore-part of the human body being expreſſed in Plate I. where 1, 1, are the frontal muſcles; 2, 2, the orbiculares pelbebrarum; 3, the attollens auriculum; 4, the temporalis; 5, the maſſeter; 6, repreſents the muſcle called conſtrictor, or depreſſor pinnæ narium; 7, the dilatator alæ naſi; 8, the zigomaticus; 9, the place of the elevator labiorum communis, called by Lancifi, gracilis; 10, the elevator labii ſuperioris proprius; 11, 11, the conſtrictor, or ſphincter labiorum; or orbicularis labiorum: by ſome called oſculatorius; 12, the buccinator; 13, 13, the muſculi maſtoidei; 14, 14, the ſterno-hyoidei; 15, 15, thoſe parts of the muſcles which ariſe from the clavicle; 16, 16, the coraco-hyoidei; 17, the ſcaleni; 18, repreſents part of the

cucullaris on the right ſide; 18, on the left ſide, is the levator or elevator ſcapulæ, otherwiſe called muſculus patientiæ; 19, 19, the place where the fibres of the pectoralis unite in ſome meaſure with thoſe of the deltoides; 20, 20, the deltoides; 21, the place in the carpus where the palmaris longus paſſes through a ring in the annular ligament; 22, a remarkable union of the tendons of the extenſors of the three laſt fingers; 23, 23, the productions of the peritonæum, which, perforating the muſcles of the abdomen at the rings, deſcend to the ſcrotum; 24, 24, the place where the three tendons of the ſartorius, gracilis, and ſeminervoſus, are inſerted into the interior part of the tibia, juſt under the knee; 25, 25, the tendons of the extenſors of the toes, which are ſecured by a ligament at the ancle, as appears on both ſides; but on the right ſide, internally, another ligament is repreſented, which fixes the tendons of the extenſor longus digitorum, the tibiæus poſticus, and the flexor pollicis; 26, 26, the muſculus pectoralis; 27, the triceps extenſor cubiti on the right ſide; 28, and 30, the biceps on the left ſide, according to Lancifi's explication; 29, part of the triceps extenſor on the left ſide; 30, the biceps on the right ſide; 31, the branchiæus internus; 32, the anconæus; 33, the pronator rotundus; 34, 34, the ſupinator longus; 35, 35, the radius externus, according to Lancifi; 36, the extenſor carpi ulnaris; 37, 37, the cubitæus internus, according to Lancifi; 38, the radius internus, according to Lancifi; 39, the palmaris with its tendinous expanſion; 40, 40, the tendons of the muſcles of the thumb; 41, the tendon of the abductor pollicis; 42, the extenſor magnus digitorum; 43, ligamentum carpi; 44, 44, the tendons of the iliaci interni; 45, the pectinæus; 46, one of the heads of the triceps; 47, 47, the rectus femoris on each ſide; 48, 48, the vaſtus externus on each ſide; 49, 49, the vaſtus internus on each ſide; 50, the gracilis; 51, the ſeminervoſus; 52, the ſartorius on each ſide; 53, a part of the origin of the vaſtus externus; 54, 54, the membranoſus; 55, the tibialis anticus; 56, the gemelli; 57, 57, the ſolæi; 58, the tendon Achilles; 59, according to Lancifi, is the exterior digitorum longus; 60, the tendons of the extenſors of the toes; 61, the tendons of the extenſor longus, tibiæus poſticus, and flexor pollicis: A, A, portions of the latiſſimus dorſi on each ſide; B, B, the indentations of the ſerratus major anticus; C, C, the ſternum.

Plate II. repreſents the muſcles of the back part of the human body; where 1, 1, expreſs the two muſcles upon the occiput, called by Euſtachius, quadrati; 2, the muſculus cucullaris; 3, the ſplenius; 4, the muſculus maſtoides; 5, the muſculus patientiæ, or levator ſcapulæ proprius; 6, the rhomboides; 7, the articulation of the clavicle with the ſcapula on the right ſide; 8, the deltoides; 9, the teres minor; 10, the teres major; 11, 11, the latiſſimus dorſi on each ſide; 12, the glutæus major; 13, the

glutæus



The Muscles of the Human Body.

Plate 2.

glutæus medius; 14, the muſculus pyriformis; 15, the quadratus femoris; 16, the biceps femoris; 17, the ſemimembranoſus; 18, the membranoſus, according to Lancifi; 19, 19, the vaſi externi; 20, the gaſtrocnemii; 21, the ſoleus; 22, the plantaris.

Of the BONES, or HUMAN SKELETON.

A BONE is a ſimilar, ſpermatic, part, cold and dry, endowed with hardneſs, ſtrength, and ſolidity, that it might give force to the body, ſuſtain it, and help its motion. Its ſubſtance is naturally hard and ſolid, covered with a membrane, called *perioſtion*, white, with ſome redneſs; hollow in the middle, (except the ribs, &c.) ſmooth; covered in its extremities with a cartilage, and moiſtened with a fat humour, called *medulla*, or marrow. Some bones are perfectly generated in the womb, as thoſe of the ear, being the ſmalleſt in the whole body. They are nouriſhed by arterial blood, as may appear in the bones of young animals, whoſe marrow is yet bloody, as alſo by blood contained in the marrow; but the proximate and immediate nutriment of hollow bones is the marrow; but of bones not hollowed, thick blood ſent in through the pores. The proper matter therefore of a bone is ſeed, which conſiſts of humours and ſpirits. The efficient cauſe is the *vis oſſifica*, or an innate faculty, acting by the aſſiſtance of heat.

The bones are joined together, either by *ſymphyſis*, for firmneſs and union; or *arthroſis*, articulation or jointing. Natural union or growing together, is when the connection or joining of bones is without motion: and this is with, or without, a medium. *Symphyſis* without a medium is three-fold, viz. by *ſutura*, *harmonia*, and *gomphoſis*. *Sutura*, a ſuture, is the joining of bones by indenture, as if the teeth of two ſaws were thruſt one into another, as in the bones of the *cranium*, or ſkull. *Harmonia*, is the joining of bones by a ſingle line, whether ſtraight, oblique, or circular, as in the bones of the noſe and upper-jaw; and ſo all epiphyſes in a manner are joined. *Gomphoſis*, or nailing, when one bone is faſtened into another, as a nail in a poſt; ſo the teeth are faſtened in the jaw-bones.

The whole ſtructure of the bones of the head is called *cranium*, the ſkull, becauſe it is as it were an helmet; it is alſo called *calva* and *calvaria*: its ſubſtance is bony, to ſecure the brain; but in new-born children it is ſofter than ordinary.

The bones of the head are either proper or common; the proper are in number ſix: 1. *os frontis*; 2, 3, *oſſa ſincipitis*; 4, *occipitis*; 5, 6, *oſſa temporum*. The common bones are only two in number; *os ſphænoides*, and *os ethmoides*. *Os frontis*, the forehead-bone, called alſo *coronale*, is bounded before by the coronal and firſt common ſuture, and at the ſides by the temporal bones; it is but one in thoſe of ripe age, but in children it is double, being divided by a ſuture paſſing from the coronal to

the noſe; it alſo has a two-fold table, an internal and an external. On each ſide of this bone, above the eye-brows, there are large cavities, commonly two in number, between the two tables, clothed ſometimes with a green membrane, and containing a ſoft, clammy, and marrowiſh, ſubſtance; from whence two holes paſs into the wide ſpaces of the noſtrils; and another, which ends into the ſkull above the ſeptum of the *os ethmoides*, to diſtinguiſh the organs of ſmelling.

Offa ſincipitis, the bones of the fore-part of the head: theſe cover the moiſteſt part of the brain, are in ſhape four-ſquare and unequal, and of a more rare or ſpongy ſubſtance than the other bones, whence the wounds of the ſinciput are deadly: they are joined before with the bones of the forehead, with the coronal future; to the os occipitis, by the lambdoid future; and to the *offa temporum*, by the ſquamous future: without they are ſmooth, but within unequal, by reaſon of the prints which the jugular veins of the dura mater leave behind them.

Os occipitis, the bone of the hinder part of the head, conſtitutes almoſt all the hinder part of the ſkull; and is in children three or four bones, but in grown perſons but one. Its form is that of a ſpherical triangle, and is joined to the crown-bones by the lambdoid future. It is the thickeſt and moſt compact of all the bones of the head, chiefly at the baſis of the ſkull; (becauſe there the noble ventricle is ſeated, and from thence the nerves ariſe as from a fountain;) but at the edges it is the thinneſt of all. It is ſmooth without, but within it has many ſinuoſities to receive the mennings ſafely. It has five holes, through the greateſt whereof the *ſpinalis medulla* paſſes to the back-bone. The ſmaller ſerve for the going-forth of the nerves, and entrance of veins and arteries. It has nine cavities, ſeven within and two without; and two broad proceſſes at the baſis, covered with a griſtle, which is more eminent, and inſerted into the cavities of the firſt vertebra for the motion of the head; as alſo another ſmall proceſs behind joined to the firſt vertebra. *Offa temporum*, the bones of the temple: their form is uneven; almoſt circular, becauſe of their various ſubſtance, which is like rocks and craggy cliffs, for which cauſe they are alſo called *offa petroſa*, the ſtony or rocky bones. In their upper part they are attenuated like a ſcale, ſo as to be tranſparent, and are joined to the bones of the ſinciput like ſcales; before they are joined to the firſt bone of the upper-jaw, by its firſt proceſs; and to the os occipitis, by the baſtard future: they have ſix holes without, two within: the firſt external hole is large, viz. the auditory paſſage; the other five are ſmall, for veſſels to paſs through. They have two cavities; an outer, covered with a griſtle, which receives the lower jaw-bone; and an inner, which is rather long, and common to the os occipitis. The *auricularis* is internal, with a long protuberancy, wherein there is a three-fold cavity, viz. the drum, the labyrinth, and the cochlea. The *tympanum*, or drum, called alſo *pelvis*, which contains the

internal or inbred air, and the four bones, called *malleolus, incus, ſtapes,* and *orbiculare;* as alſo a ligament, two *feneſtræ,* or windows, (which are little holes in the cavity,) and a water-paſſage; from this cavity goes a channel into the palate of the mouth. The *labyrinthus,* called alſo *fodina,* is a cavity full of the crooked and manifold turnings; the entrance hereinto is the *oval feneſtra,* and joins itſelf to the following cavity; it has four holes beſides the oval, and a fifth, which is terminated in the *cochlea,* or third cavity. The *cochlea* has three or four windings; (with a wreathed or ſnail-like figure;) the windings mutually receive one another; thoſe that are thick of hearing have only one or two of thoſe windings; this cavity is clothed with an exceeding thin and ſoft membrane, and adorned with multitudes of little veins, which turn themſelves about the wreathings of the cochlea, and by many branches creep into the ſecret turnings of the labyrinth.

Os ſphenoides, or the wedge-faſhioned bone, becauſe it is ſeated as a wedge in the middle of the bones of the ſkull; at the ſides it goes along with the *os petroſum,* from whence it is ſeparated by a rough chink; above it touches the firſt, fourth, and ſixth, bones, of the upper jaw; below it touches the bone of the palate of the mouth, and is placed under the brain, as a foundation, ſo that it touches almoſt all the bones of the head and upper jaw: in children it is made of four bones, but in grown perſons it is but one. It is ſolid, and the thickeſt of all the bones of the head, where it makes the baſis of the ſkull. In the external table are two remarkable apophyſes, near the ſides of the holes of the noſe, formed like the wings of a bat. In the internal table are four little proceſſes, in ſhape of a Turkiſh ſaddle, called *ſella Turcica,* full of little holes, whoſe uſes are to elaborate the in-breathed air, to make ſpirits, and to paſs out pituitous excrements through the funnel, out of the ventricles of the brain. It has ſundry perforations, by which the optic and motory nerves of the eye, and other nerves for the motion of other parts, as alſo veins and arteries for nouriſhment, paſs.

Os ethmoides, the ſponge or ſieve-faſhioned bone, having in it many holes, (by which ſmells paſs to the brain,) eſpecially in the inner ſide of it, where it joins the head, and this part is properly called *cribroſa:* from this within the ſkull ariſes a ſharp apophyſis, reſembling a cock's comb, by which the ethmoides is divided into two parts; from this proceſs is oppoſed another, without the noſtrils, and diſtinguiſhing them, called the divider of the noſtrils, as alſo *ſeptum naſi.* The chief uſe of the ethmoides is to alter the air drawn in with ſmells, that the ſpecies of odours may, with the air, be carried to the organs of ſmelling, which end in theſe holes; and therefore in a *coryza,* this bone being obſtructed, the ſmelling is loſt: alſo hereby the brain is purged, for phlegm is not only evacuated by the *glandula pituitaria* into the palate, but alſo by the *os cribroſum* into the noſtrils.

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The bones of the upper jaw are in number eleven, five on either ſide, and one without a fellow: Firſt pair, *oſſa zygomatica*, the yoke-bones, is in a manner triangular, and conſtitutes the greater part of the *os zygomaticus* or *jugale*, and a great part of the *orbita* and outward angles of the eye, on the lower ſide. Second pair, *os lachrymale*, is a round, little, and thin, bone, in the inner corner of the eye: by this a branch of the fifth pair of nerves of the brain paſs to the inner membrane of the noſe. Third pair, *os maxillare*, the cheek-bone, the greateſt and thickeſt of them all; it contains all the upper teeth, and makes up the holes of the noſe, and moſt of thoſe bones which belong to the upper part of the face: it has large cavities on both ſides, very remarkable, both that it might be leſs ponderous, and that it might contain marrow to nouriſh the bones and upper teeth. Fourth pair, *os naſi*, the bone that conſtitutes the external and prominent bony part of the noſe; it is thin, hard, ſolid, and quadrangular: theſe two bones are joined with a ſuture; within they are rough, that the griſtles of the noſe may be better faſtened. Fifth pair, *os palati*, ſeated at the end of the palate, where the holes of the noſtrils go into the fauces or throat; they are thin, ſolid, and broad, and conſtitute the hinder part of the cavity of the palate and noſtrils. Sixth, *vomer*, the bone without a fellow, like a plough; it is the inmoſt and middlemoſt under the *ſphænoides*; and above the palate: it holds up the bridge of the noſe like a partition wall, to which it is joined by the ſuture *harmonia*. Six bones conſtitute the orbit of the eye: 1. The *frontale*, which makes the upper vaulted part; 2. *zygomaticum*, that on the outſide where the ſmaller corner is, and a portion of the *os ſphænoides*; 3. another on the outſide, concurring with the former part of the *os ſphænoides*; 4. *maxillare*, and 5. *lachrymale*, which conſtitute the inner part; 6. the ſcaly table of the *os ethmoides*, which makes up the lower ſide, all united partly by common, partly by proper, ſutures.

In children till about ſeven years of age, the lower jaw conſiſts of two bones, which are joined together by ſyncondroſis; but in grown perſons it is but one. The arched part of this bone is the chin; at each end of the ſhanks are two proceſſes, whereof one is ſharp, called *corone*, going forward, into which the tendon of the temporal muſcle is implanted; the other *articularis*, becauſe it ſerves for articulation with the temple bones, which articulation is covered with a common membranous ligament. Its ſubſtance is exceeding hard and ſtrong, that it may hold out in biting and chewing; within it there is a long cavity, where marrow is contained to nouriſh the teeth, and by which a branch of our fifth pair of nerves of the brain runs unto the roots of the teeth with a little vein and artery: this cavity goes quite through the jaw-bone like a pipe, ſo that a copper wire, put in at one

one end, will come out at the other. It is moveable, and contains ſockets for the teeth; and in old age, when the teeth fall out, the ſockets draw together, and become ſharp.

The teeth are bones properly ſo called, white, ſmooth, hard, and ſolid, being indeed harder than other bones, that they might bite and chew hard things, not much inferior in hardneſs to ſtones. They are naked, without any perioſtion, yet endowed with a kind of ſenſe, as may be perceived by cold drink, or when ſet on edge; which ſenſe is lodged in the inner, ſofter, and more-nervous, part. They receive into their cavities nerves, which other bones do not, and by which they are tied to the mandible with a ſineuroſis. The teeth continually grow all a man's life, becauſe they are daily worn by biting and grinding. The cavities of the teeth are clothed with a little membrane of exquiſite ſenſe, whence it is that pains of the teeth are ſo exceeding vehement: they have five little nerves from our firſt pair, which are ſpread abroad within, and by ſmall twigs mixed with the mucilaginous ſubſtance in the middle of the teeth; as alſo by little arteries to give natural heat and nouriſhment, and little veins to carry back the blood after nutrition.

The tongue-bones are ſeated under the lower jaw, and in the uppermoſt part of the larynx. They are commonly accounted but one bone, though made up of three. The uſe of theſe bones is to keep the throat open, both for the paſſage of the food, and for receiving in of air in ſpeaking or breathing.

The bones of the ears are the leaſt of all, being the bones ſubſervient to hearing, and are four on each ſide. They are all placed in the firſt cavity; their ſubſtance is hard and denſe, but hollow within, that they might be lighter, and contain marrow for their nouriſhment; they are as big in new-born babes as in men, but not ſo hard. The principal of theſe bones are called, *malleus*, the hammer; *incus*, the anvil; *ſtapes*, the ſtirrup; and *os orbiculare*, which is round and ſmall, joined by a ſmall ligament to the ſtirrup-ſide, where it is joined to the anvil. The uſes of theſe bones are to ſerve the ſenſe of hearing, and to make a paſſage for the excrements of the ears; for the ſtirrup, ſhutting the oval, is moved by the anvil; and the anvil being ſmitten by the hammer, and the hammer by the membrane of the drum, through the impulſe of the external air, the membrane of the drum is in the mean while driven inwards, whereby the inbred air is affected, which, paſſing through the cochlea, cauſes the branches of the auditory nerve to receive ſounds, and to communicate the ſame to the brain.

The bones of the neck, and the whole vertebræ of the back, from the cranium or ſkull to the os coccygis or crupper-bone, are termed *ſpina*, the thorn, becauſe the hinder part of it is ſharp-pointed like a thorn-branch. The parts of the ſpine are called *vertebræ*, whirl-bones, becauſe by their means the body is turned ſeveral

ways. All theſe vertebræ are hollowed, to contain the ſpinal marrow; they are many, for the conveniency of motion. The figure is ſometimes inclining inwards, as the vertebræ of the neck, to ſuſtain the gullet and aſpera arteria; and the vertebræ of the loins, to uphold the trunks of the aorta, and cava deſcendens; ſometimes outwards, as the vertebræ of the back, and a little of the os ſacrum, that there may be a larger ſpace for the heart, lungs, bladder, anus, womb, &c. The figure of each vertebra, above and below, is plain and broad, that luxation may not eaſily be made: round within, convex, and bunching out; but in the neck broader, and more even.

The vertebræ of the back are in number twelve, to which as many ribs anſwer. Theſe vertebræ are round on the fore-part, but behind ſomewhat hollow. They are thicker than thoſe of the neck, leſs ſolid, and full of little holes, for the paſſage of the nouriſhing veſſels.

The vertebræ of the loins are five in number, and belong to the abdomen or lower belly; they are thicker and greater than thoſe of the breaſt, becauſe they uphold them, and the lowermoſt are biggeſt. Their figure is long and ſemicircular; their ſubſtance ſpongy, and full of holes, to give paſſage to the veins; their connection is looſer than that of the back, that we might the more eaſily ſtoop to the ground.

The *os ſacrum* is broad and immovable, being the baſis or foundation of the back, upholding the whole frame of the vertebræ. In infants it is commonly compoſed of ſix bones united by a cartilage, but in men of ripe years it ſeems but one bone at the firſt view, yet, being boiled a long time in oil, it is divided for the moſt part into ſix ſeveral vertebræ; for each of them has a body and proceſſes, and has a large hole to receive the medulla ſpinalis. But in this they differ from the other vertebræ, becauſe in thoſe the lower part is the bigger, but in theſe the ſmaller; wherefore the uppermoſt is the biggeſt, and the loweſt the leaſt. Its figure is almoſt triangular: in its fore-part hollow, ſmooth, and even; in its hinder-part bunching and rough, with little holes to ſend out nerves.

The *os coccygis*, the crupper or rump-bone, is under the former, conſiſting of three bones and two griſtles, and is called os coccygis, the cuckoo's bill, from the likeneſs thereof. It is joined by a cartilage; for the firſt bone of it has a ſmall hollowneſs which receives the laſt vertebræ of the os ſacrum. Of theſe three bones, the lower is ſtill the ſmaller; and in men, they are bent inwards to ſtay the great gut, and the ſphincter muſcle, which are tied to it; but in women they bend outward, to give way to the womb in the time of travail. Theſe bones are of a ſpongy and ſoft ſubſtance, and have neither proceſs nor any hollowneſs. Their union with the os ſacrum is looſe, to give way for the excluſion of large excre-

ments; for otherwiſe a luxation might happen, cauſing exceeding great pain; as in hard labour it now ſometimes happens.

The *os innominatum*, hoop-bone, or flank-bone, conſiſts of three bones, viz. *os ilium*, *os pubis*, and *os ischion*, all which are joined together by griſtles till about the ſeventh year; afterwards, eſpecially in thoſe of ripe years, the cartilages being dried, there ſeems to be but one bone. Theſe three bones, together with the os ſacrum, make that cavity which is called *pelvis*, the baſon or bowl, which is bigger in a woman than in a man, that the womb of a woman with child may the better reſt upon it. In hard labour, the ſhare-bone, or os pubis, and the os ſacrum, will part, the cartilages and ligaments (being bedewed with ſuperfluous humidity) giving way. 1. *Os ilium*, the huckle-bone, ſo called becauſe it contains the gut ilium, is the firſt part, the higheſt, the broadeſt, and the greateſt, in figure ſemi-circular, arched without and hollow within: the ſemi-circle is called *ſpina*, the arched part *dorſum*, and the hollow part *coſta*. 2. *Os pubis*, the ſhare-bone, is ſeated in the fore-part, and is parted in the middle by a cartilage not very hard: it is joined to the bone of the other ſide by ſynchondroſis, which in women is twice as thick and as wide as in men, that theſe bones in child-bearing may not be luxated or diſjointed, but only looſened and made wide for the coming forth of the child. 3. *Os iſchion*, the hip-bone, is the lower and more outward part, wherein is a large and deep cavity, called *acetabulum*, the ſaucer, or *pixis*, the box, which receives the large head of the thigh-bone: the cartilaginous proceſs of this cavity is called *ſupercilium*, the brow. The *coxendix* is placed between the huckle and ſhare-bones, and is knit to the os ſacrum by a double ligament; the one is inſerted into the ſharp proceſs of the hip, the other behind, into its appendix, that the inteſtinum rectum and its muſcles may be ſuſtained.

The *coſtæ*, or ribs, in figure reſemble a bow, or ſegment of a circle; their original from the vertebræ is narrower and rounder, growing broader as they come to the breaſt: in their upper ſides they are blunt and thick; in their under part ſharp and thin; the uppermoſt ribs are more crooked and ſhorter; the middlemoſt are longer and broader; the lower are cut again ſhorter. Their ſubſtance is partly cartilaginous and partly bony, the bony part being towards the vertebræ; where they are furniſhed with two little apophyſes or knobs; the firſt of which is articulated with the hollow of the vertebræ: the ſecond is joined to the tranſverſe proceſs of the vertebræ; but the five lower ribs by a ſimple knob. The number of the ribs is twelve on each ſide; ſeldom thirteen, more rarely eleven: and, when they are ſo found, you may account their numbers either ſupernumery or deficient. They are two-fold, viz. either legitimate and true; or illegitimate and falſe. The true or legitimate are the ſeven upper ribs, becauſe they touch the

breaſt-

breaſt-bone by their length, and make as it were a circle; they alſo make a perfect articulation with the breaſt-bone. The illegitimate or baſtard ribs are the five lower ribs, which are ſhorter, ſmaller, and ſofter, not reaching to the breaſt-bone: they are ſemi-circular and arched without, hollow within: they terminate into longer griſtles than the true ribs, which, being turned back upwards, ſtick one to another, the laſt excepted, which is the leaſt, and ſticks to none. The eleventh rib, and ſometimes the twelfth, are tied to the ſeptum tranſverſum; and ſometimes the laſt grows to the oblique deſcendent muſcles of the belly, without the midriff; or has the circumſcription of its proper muſcle. The uſe of the ribs is to defend the breaſt, and the heart, lungs, and other bowels, therein contained; as alſo to help the motion of the breaſt and parts adjacent, in ſuſtaining the muſcles and fleſhy parts thereof.

The *ſternum*, or breaſt-bone, is placed upon the fore-part of the cheſt, and reſts upon the ribs: its ſubſtance is partly bony, but ſpongy and red; partly griſtly; its figure is convex, broad, and long. It is compoſed of three bones, as may be ſeen in young people: but in old men it commonly appears but one: they are diſtinguiſhed by tranſverſe lines, and are knit together by ſynchondroſis, for griſtles are interpoſed like ligaments. Under this is the pit of the ſtomach, where the upper and left orifice is called *ſcrobiculus cordis*. The uſe of the ſternum is, firſt to defend the heart (like a ſhield) from outward dangers; ſecondly, to uphold the mediaſtinum; thirdly, to collect and faſten the ribs.

The collar-bones, being in number two, are called *claviculæ*, keys, becauſe they ſhut up the breaſt or thorax, and as it were lock the ſcapulæ, or ſhoulder-blades, to the ſternum. They are ſituated croſs-wiſe, under the lower-part of the neck, on the top of the thorax on each ſide: externally they are convex, on the inſide a little concave: their ſubſtance is thick, but fiſtulous and ſpongy, and therefore eaſily broken; their ſuperficies are rough and uneven. Their uſe is to aſſiſt in the various motions of the arms; as alſo to uphold the ſhoulder-blades, that they ſhould not fall upon the breaſt, together with the ſhoulder-bone; moreover the bone of the arm reſts upon this bone, as upon a prop, that it may be the more eaſily moved upwards and backwards. Hence brutes have no collar-bone, the ape, ſquirrel, hedge-hog, and mouſe, excepted.

The ſhoulder-blade is a broad and thin bone, reſting upon the upper ribs behind, like a ſhield. Its ſubſtance is hard and ſolid; its figure almoſt triangular, the outſide ſomewhat arched, but the inſide hollow: it has alſo a ſpine or ſharp point, looking both above and beneath the cavities, called *interſcapulia*. In the inſide of this bone, about the middle, there is a hole, by which a vein doth paſs for its nouriſhment. It has five epiphyſes, three at the inſide, and two at the baſis; it has alſo

alſo ligaments, which joins its head to the humerus and the acromion, or ſhoulder to the clavicula; and common, thin, and membranous, ligaments, which compaſs the joint of the ſhoulder-blade and arm. Its uſes are, 1. to ſtrengthen the ribs; 2. for the articulation of the humerus and clavicula; 3. for the inſertion of the muſcles; 4. to cover the heart, and defend the back from being hurt.

Os brachii, or bone of the arm, called alſo the ſhoulder-bone, is but one, great, ſtrong, long, roundiſh, and uneven. Its ſubſtance is hard and ſolid; it is hollow all along within, containing marrow, but at the two ends more broad, and a little ſpongy. In its upper part it has an appendix, *epiphyſis*, or great head, growing to it; which is round, covered with a griſtle, and articulated with the ſcapula by diarthroſis. In the top of it is alſo a long chink, through which the nervous head of the muſculus biceps doth paſs. The longer part is articulated to the ulna and radius, where there are two apophyſes; an external, which is leſs, and cruſted with a griſtle; and an internal, having two cavities, repreſenting a pulley, with which the cubit is joined by ginglymus, ſo that it may be bent to a moſt acute angle, but not extended beyond a right line.

The bones of the cubit, or elbow, are two: the ſmaller above, called *radius*, and a larger below, called *ulna*. They are ſhorter than the ſhoulder, have epiphyſes on either ſide, and, reſting mutually one upon another, are joined by a membranous ligament: above, the *ulna* receives the *radius*; but, below, the *radius* receives it. Their ſubſtance is firm and ſolid: they are long, and contain a marrowy ſubſtance; but their ſurface is ſomewhat rough, by reaſon of the lines appointed for the muſcles.

Carpus, the wriſt, hath eight diſtinct bones, all of them unequal, and differing in ſhape and magnitude. At firſt they are griſtles, afterwards ſpongy bones, covered with very ſtrong griſtly ligaments, which faſten them together as if they were but one bone: theſe ligaments, ariſing from the lower proceſſes of the *ulna* and *radius*, ſerve for articulation: but there are angular or ring-ſhaped ligaments, which are tranſverſe, and encompaſs the wriſt, to comprehend, ſtrengthen, and ſafely carry, the tendons, which paſs through the carpus; theſe are many, though they ſeem to be but one ligament: the internal comprehend the tendons of the muſcles which bend the fingers; the external, the tendons of the muſcles which extend them.

The *metacarpus*, or palm of the hand, has four bones, of a hard and ſolid ſubſtance, and hollow, containing marrow; they are round, and bigger than thoſe of the fingers; that which anſwers to the fore finger is biggeſt, and ſo ſtill the lowermoſt are ſmaller. Between each bone a diſtance is left for the *muſculi interoſſei* of the fingers: and in the palm there is a tranſverſe ligament, which

ties the bones of the fingers to the *metacarpium.* Above and beneath they have epiphyſes: by the upper, they are joined to the *carpus,* or wriſt; by the lower, they enter into the hollowneſs of the fingers.

The bones of the fingers are in number fifteen, each of them having three bones, and anſwering the bones of the metacarpus, the thumb excepted. The thumb has no connection with the bones of the metacarpium, becauſe it is articulate with the wriſt, with a manifeſt motion; whereas the bones of the palm are joined to the wriſt without manifeſt motion; as alſo becauſe the upper joint of the thumb is ſhorter than the bones of the *metacarpium,* and not anſwerable to them. Each finger has ligaments on their inſides, according to their length, like channels, whereby they are faſtened one to another.

The thigh has but one bone, which is the greateſt and longeſt in the whole body. In its ſuperior extremity, the head is round, to which a ſlender part is added, called the neck; from the neck are two *apophyſes* produced, to which the muſcles called *rotatores* are faſtened, and therefore they are called *trochanters.* The lower part of the thigh has two low prominences or heads called *condyli,* a cavity being left between of a thumb's breadth, through which the veſſels paſs, with a nerve of the fourth pair, which cavity alſo admits the middle and eminent apophyſes of the *tibia,* or leg: in like manner the *condyli* are received by the cavities of the leg, by a looſe articulation, called *ginglymus:* the inner of theſe heads is more thick, the outer more broad and flat. The upper part of this articulation is called the *knee,* the hindermoſt the *ham.*

The *patella,* or knee-pan, is ſomewhat round, about two inches broad; plain without, having many holes, but within bunched, and there covered with a cartilage; its ſubſtance in young children is cartilaginous, but in grown perſons bony; its figure is almoſt like a buckler or ſhield; its ſituation is upon the jointing of the thigh and leg, where the knee is compaſſed with a membranous ligament, the *patella* excepted. It grows to, and is faſtened by, certain thick tendons of ſome muſcles of the thigh; as the ſecond, third, and fourth, muſcles, which extend the *tibia,* and paſs by the knee to it, and are inſerted into the fore-knob of it: its uſe is taken from its ſituation, being ſet before the thigh-bone and *tibia,* to ſtrengthen the articulation, leſt the thigh-bone, in going down any hill, ſhould ſlip out forwards; as alſo to defend the tendons of the muſcles.

The ſhank, or leg, is compoſed of two bones; the one, being the inner and the greater, is called *tibia;* the other *fibula. Tibia,* the ſhank-bone, has in its upper part a proceſs in the middle, which is received by the cavity of the thigh-bone. It is joined to the thigh-bone by ginglymus: the *fibula* only cleaves to the *tibia,* and touches

touches not the thigh-bone. In the lower part there is an apophyſis void of fleſh, ſticking out with a bunch near the foot, which is called *malleolus internus*, the inner ancle-bone; as the proceſs of the fibula is called *malleolus externus*, the outward ancle-bone. *Fibula*, the button, (becauſe it ſeems to button together the muſcles of the ſhank,) which is alſo called *ſura*, the calf, is a firm bone, being drawn along before the tibia without, as the radius before the cubit. The upper end with its round head ſubſiſts beneath the knee; but with its hollowneſs, it receives the lateral knob, which is under the epiphyſis in the upper end of the tibia. In the middle there is a diſtance between the tibia and fibula; in which ſpace is a thin broad ligament, joining theſe bones in longitude, and where alſo the muſcles of the feet are placed.

The bones of the *tarſus*, or inſtep, are ſeven. *Aſtragalos*, the game-bone, to which are joined the great and ſmall focile. *Pterna*, the ſpur of the foot, or heel-bone, into which the greateſt and ſtrongeſt chord or tendon in the whole body is inſerted. *Os naviculare*, from its likeneſs to a boat; it is long, bunched without, and hollow within, and covered with a cartilage. *Os teſſeræ*, or die-ſhaped bone, becauſe it hath ſix ſides; it is greater than the reſt, and placed before the heel, joined to the fourth and fifth bone of the metatarſus: in the hinder with the heel-bone: the other ſides are joined to no bones. *Cuneiformia*, *calcoidea*, the wedge-like bones, or bones of the foot, are articulated with the ſcaphoides, or os naviculare: being joined, they repreſent a vault; for above they are convex, beneath hollow, to receive the tendons and muſcles.

The *metatarſus*, or ſole of the foot, has five bones, which are ſolid without, hollow within, longer than the bones of the back of the hand, and knit to the bones of the tarſus. That which ſtays the great toe is the thickeſt, that which ſtays the next toe is the longeſt, the next is ſhorter, and the reſt each ſhorter in order. The lower end of that which ſtays the great toe, is received by the cuneiforme majus; the ſecond by the cuneiforme minus; the third by the third wedge-like bone; the other two by the two tops of the os cubiforme.

The bones of the toes are in number fourteen: the great toe has only two, the reſt three a-piece. They are ſolid without, hollow within; and have three joints and two proceſſes, anſwering in all things to the bones of the hand. The lowermoſt joints have two knobs, received by the ends of the middlemoſt joints; the uppermoſt joints have alſo a deep hollowneſs, becauſe they receive the ends of the bones of the foot.

There are certain little bones called *ſeſaminia* or *ſeſamoidea*, being almoſt like ſeeds, both in form and magnitude, being for the moſt part in number forty-eight. They are round and a little flat, and leſs in the feet than in the hands,

excepting thoſe in the great toe. They are moſt commonly twelve in each hand, or twenty-four in both hands, and ſo many in each foot. They grow to the tendons of the muſcles which move the fingers and toes, under which they lie, wrapped up in the ligaments, and come away in cleanſing the bones, unleſs great care be uſed. The uſes of theſe ſeſamoidean bones are to defend the tendons; to ſtrengthen the joints, and preſerve them from luxation.

The annexed Plate demonſtrates the Skeleton, or Bones of the Human Body, which conſiſts of 239, excluſive of the ſeſamoideans, os hyoides, and bones of the ears; which, being added, would make the total number 308.

1, Os frontis, or frontal bone; 2, ſutura coronalis, or coronal future; 3, vertex ſiniſter; 4, ſutura ſquamoſa; 5, proceſſus oſſis ſphenoides; 6, os temporis, or temporal bone; 7, proceſſus maſtoideus; 1, os mali; 9, oſſa naſi, or bones of the noſe; 10, 11, the ſuperior and inferior maxillary bones; *a*, vertebræ of the neck; *b*, vertebræ of the back; *c*, vertebræ of the loins; 12, os ſacrum; 13, the ſternum, or breaſt-bone; +, the coſtæ; 14, the clavicula, or clavicles; 15, the ſcapula; 16, the humerus, or arm-bones; 17, the ulna; 18, the radius; 19, the carpus, or wriſt; *d*, the metacarpus; *e*, the pollex: *i*, oſſa digitorum manus; 20, the os ilium; *o*, the os iſchium; 22, the os pubis; 23, tuber iſchii; 24, foramen magnum; 25, os femoris; *r*, collum oſſis femoris; *s*, caput oſſis femoris; 26, the trochanter major; 27, the trochanter minor; *t*, the patella; 28, the tibia; 29, the fibula; *u*, the talus; 30, the calcaneus; 31; the metatarſus; *z*, oſſa digitorum pedes.

Of the ABDOMEN, or BELLY in GENERAL.

THE abdomen is all that part, diſtinguiſhed within (by the midriff) from the cheſt to the *os pubis*. It is bounded by the *cartilago mucronata*, vertebræ of the loins, *os ſacrum*, hip-bones, *os pubis*, and the baſtard ribs on either ſide. It is divided into three regions or parts: Firſt, the uppermoſt, called *epigaſtrium*, each ſide of which is called *hypochondrium*, lying under the griſtles of the ſhort ribs: it is bounded between the *cartilago mucronata*. Secondly, the middle part, called *regio umbilicalis*, which extends from three inches above the navel to three inches below it: the lower part, called *hypogaſtrium*; the lateral parts are called *inguina*, the groins; in the right ſides of which, are parts of the *colon* and *cæcum*, which are tied together; in the left, a great part of the *colon* and *inteſtinum rectum*; the fore-part of it is called *aqualiculus*, and the loweſt part, which is covered with hair, is called *pubis*, the ſhare; the hair begins to appear here in girls about the twelfth year, but in boys about the fourteenth year, of age. Under this region in women are contained the bladder, matrix, and *inteſtinum rectum*.

The

The Bones, or Human Skeleton.

The *peritonæum* is ſo called from ſtretching and ſpreading about, being drawn over all the parts between the midriff and thighs. Its original is from the firſt formation, at the third vertebra of the loins, where it is thicker, ſo that it cannot, in that place, be ſeparated without breaking. The muſcles of the belly being taken away, the peritonæum comes to view: it is tied above to the midriff; below to the ſhare and flank bones; in the fore-part firmly to the tranſverſe muſcles, but chiefly to their tendons about the linea alba; behind to the fleſhy heads of theſe muſcles. It is ſpermatical, cold and dry by nature, and of a ſubſtance not ſimple and uniform, but double and unequal in thickneſs. It is a membrane double in all places, but it is moſt apparent about the vertebra of the loins, where, between the duplications, lie the vena cava, the aorta, and the kidneys. Its uſe is to ſend connections to all the parts; to beſtow coats upon all the bowels of the abdomen; to give a covering to the diaphragm, liver, and ſpleen; to produce the ligament which upholds the liver; to make a communion with all the principal parts by veins, arteries, and nerves; to produce the omentum; and, by its reduplication, the meſentery.

The *omentum*, or caul, ſo called, becauſe it floats or ſwims upon the guts: it lies under the peritonæum, and is ſituated at the liver, ſpleen, and bottom of the ſtomach: in ſome it ceaſes at the navel, in others it falls below the navel, and ſometimes it reaches to the os pubis, where it is inſerted. It is a thin membrane, endowed with much fat, double, and disjointed. In men, when it deſcends into the ſcrotum, it cauſes the rupture epiplocele, which happens moſt commonly on the left ſide, becauſe it is extended rather to the left than the right ſide. Its ſubſtance is membranous, that it might admit dilatation and extenſion; it is compact, to hinder the diſſipation of the internal heat, and to expel the external cold: it is tied to the ſtomach, being a middle part between the colon and the ſpleen. Its uſes are to cheriſh and ſtrengthen the internal heat of the ſtomach and inteſtines; to give nouriſhment to the parts in time of famine; to contain the humours flowing from the inteſtines, which the glandulous cannot receive wholly at one time; to prop up the branches of the veins and arteries of the ſtomach, duodenum, colon, and ſpleen; and to generate the fat.

The ſtomach, called *ventriculus*, from its cavity, is ſituated in the epigaſtrium, a place encompaſſed with no bones, that it might ſtretch the more eaſily, immediately under the midriff, which it touches, ſo that, if it be too full, it cauſeth a difficulty of breathing, by hindering the motion of it. In the fore-part and on the right ſide, it is covered with the hollow of the liver; in the left by the ſpleen; ſo that the ſtomach is as it were between two fires, bending a little towards the left hypochondrium, and towards the back part it leans on the aorta, the cava, and the pancreas, which helps its heat. It is leſs in women than in men, to give way to

the diſtention of the matrix, and it is compoſed of three tunicles; the outwardmoſt is common from the peritonæum, and is the thickeſt; the middlemoſt is proper to itſelf, and fleſhy; the innermoſt is from the *dura meninx*, and wrinkled, as alſo hairy like a piece of ſilk: this is continued with the tunicle of the œſophagus, mouth, and lips, that nothing may be received in which is ungrateful to the ſtomach: hence it is, that, when choler is in the ſtomach, the tongue is bitter and yellow. It is ſpongy, and has paſſages like ſhort fibres, from this inner ſurface to the outward, that the thinner chylus may be the better detained. The inmoſt coat ſerves chiefly for ſenſe; the middlemoſt for the office of motion; and the third, that it might be as a covering for the whole. The ſtomach has two orifices, and both of them in the upper region thereof; the left is called *os ſtomachi;* the right the *pylorus*, or porter: the *os ſtomachi*, or left orifice, has orbicular fibres, that, the meat and drink being once received within the capacity of the ſtomach, it may, by a natural inſtinct, exactly ſhut up the mouth of the ſtomach, leſt the fumes and heat ſhould break out, which might not only go into the brain and breed diſeaſes there, but alſo hinder concoction. The right orifice is of equal height with the other, leſt the meat and drink ſhould ſlip through before they are digeſted. It is not wide like the former, becauſe it is to tranſmit the elaborated chyle, which is done by the ſtrength of the ſtomach, in contracting itſelf. Wherefore the *pylorus*, beſides its tranſverſe fibres, has a thick and compact circle, repreſenting the ſphincter muſcle, that it might the more eaſily ſhut and open. The ſtomach has arteries from the *ramus cœliacus*, which accompany every vein, that blood may be ſupplied from the heart for nouriſhment of the part: it has likewiſe many nerves; viz. two in its orifice from the ſtomach branches, which being produced, after they have run back in the thorax, and furniſhed the lungs and pericardium, are covered with ſtrong membranes. Theſe ſo croſs one another, that they are carried obliquely, and without doubt with greater ſafety. The right branch compaſſes the fore and left part of the mouth of the ſtomach; the left branch, the hinder and right part of the ſame: from theſe, branches of nerves are ſent downwards, to the very bottom; a branch goes from the left nerve, along the upper part of the ſtomach, to the pylorus, which it infolds with certain branches, and goes to the hollow of the liver; other two nerves alſo go to the bottom of the ſtomach, from the branches which run along by the roots of the ribs. Hence it is, that, when the brain is hurt, the ſtomach is ſick, and falls a-vomiting, as in a vertigo, hemicrania, &c. alſo, when the ſtomach is affected, the head and brain are ill, or afflicted with pain; and by reaſon that the orifice of the ſtomach is ſo compaſſed with nerves, as if it were altogether made of nerves, it becomes of a moſt exquiſite ſenſe; and hence it is that vomiting ſo often ſucceeds in many diſeaſes, where there is a conſent of parts with the ſtomach. The ſtomach is the ſeat of hunger, and

does the firſt of all parts feel the want of food; (afterwards the other parts by faintneſs and univerſal debility;) for, the blood being ſpent upon the nouriſhment of the body, the fibres of the internal membrane of the ſtomach are contracted, and ſo this pain, which is called hunger and thirſt, is cauſed.

The inteſtines, or guts, begin at the pylorus, and end in the anus or fundament. They are called *inteſtina*, or inwards, becauſe they are in the inmoſt ſeat of the body. They are of a round figure, that they might the better contain the nouriſhment; of a membranous ſubſtance, the better to have conſtriction and dilatation; and indeed their ſubſtance is almoſt the ſame with the ſtomach, having three coats: The firſt common and external, being bred immediately from the *meſenterium*, but mediately from the *peritonæum*. The ſecond, which is the middlemoſt, is proper, being membranous, ſtrong, and furniſhed with fleſhy fibres. The third, which is the innermoſt, is alſo proper, nervous, and lined with a cruſty ſubſtance, framed of the excrements of the third concoction of the guts, glazed as it were with a mucus, or phlegmatic ſubſtance, bred in the firſt concoction, by which excoriation is not only hindered, when ſharp humours paſs through the guts, but alſo by its aſſiſtance the expulſion of the fæces is furthered. This internal membrane has ſuch a cruſty ſubſtance, that the mouths of the meſeraic veins might not be ſtopped, and that neither they nor the coat itſelf might be made callous by the continual thoroughfare of the chyle. The fibres of the internal membrane of the ſmall guts are oblique, but of the external coat tranſverſe; becauſe theſe are appointed for the retention and expulſion of the chyle; but, in the thick guts, the inner coat has tranſverſe fibres, the outward has oblique and ſtraight, becauſe they are appointed for the expulſion of the excrements: the inner membrane alſo of the ſmall guts is full of wrinkles, to ſtay the chylus from paſſing too ſoon. As to the length of the inteſtines, they are in general ſix times as long as the whole body: it is wonderful that the guts (of ſo great a length) ſhould be comprehended in ſo ſmall a compaſs, as that they are not above a ſpan diſtant from the centre. They have a motion which is periſtaltic, or the worm-like motion, by which they move themſelves all over by a contraction from the upper parts downwards; moreover they have many turnings and windings or bendings, which ſerve to keep the nutriment, till the concoction is perfectly finiſhed, and chyle diſtributed.

The *meſentery* is ſo called, becauſe it is the middle of the guts. It is one in number, but divided into two parts, the *meſareum* and *meſocolon*. By the *meſareum*, the ſmall guts are knit together; by the *meſocolon* the thick guts are tied together. The ſubſtance of the meſentery is a double membrane, one above another. Its ſituation is in the middle of the abdomen, ſticking to the tranſverſe proceſſes of

the

the vertebræ by ligaments, whence it is original: for it ariſes from the firſt and third vertebræ of the loins, where membranous fibres are produced from the peritonæum, which turn into ſtrong membranes. The veſſels of the meſentery are veins, arteries, and nerves, which paſs to and from the guts, between the membranes. The veins are called *meſeraicæ*, and they are two-fold, viz. *ſanguineæ* and *lacteæ*, both which are almoſt innumerable. The *venæ ſanguineæ*, or *meſeraicæ*, receive the blood from the arteries, after nouriſhing the parts, and ſo convey it back again to the liver. The *venæ lacteæ*, aſcending from the guts, and carrying the chyle, do centre in the glandules, or receptacles of the chyle. Theſe glandules of the meſentery, are to prop up and ſupport ſundry diſtributions of the branches to the *vena porta* and *arteria magna;* and hence it is, that about the centre of the meſentery are the greateſt kernels, becauſe there is the diſtribution of the greater and more collected veſſels: if thoſe become ſcirrhous, an atrophy, or extenuation of the whole body, viz. a waſting leanneſs, and pining, follows, becauſe the paſſing of the chyle is hindered, whereby the nouriſhment of the body is loſt. Their ſubſtance in men is glandulous and ſolid, like other glands of the meſentery, watered as it were with the *vænæ lacteæ*, yet capable of chyle in their leaſt corners. Their connection is in the hinder part to the *vertebræ lumbares:* in the fore-part they are joined to the meſentery by ſmall milky branches, which carry the chyle to theſe fountains or receptacles. The uſe of theſe milky glandules is to receive and contain the chyle coming from the *venæ lacteæ* of the meſentery: as alſo to digeſt and prepare it by the help of the neighbouring hot veſſels, viz. the artery and vein, and then, being prepared, to thruſt it out into the *thoraices*, and other parts, as the liver, which is eaſily proved by ligature; for, if theſe *lacteæ*, whether in the thorax or going to the liver, be bound, they always ſwell on that ſide next to the glandules or meſentery, and grow empty on the other ſides: they alſo ſqueeze out the ſerum, being ſeparated from the chyle in that light preparation, and expel it either into the reins adjacent to them; or into the emulgent arteries, to which they ſend branches; or into the capſulæ atrabilariæ, appointed for melancholy; or, laſtly, into the doubling of the peritonæum, in which they abide, which is ſometimes the cauſe of the dropſy aſcites: and herein we have the reaſon why a dropſy is many times ended by diuretics and diſſolved by urine; and how thoſe, who are extreme drinkers, do ſo immediately evacuate what they have drunk; for that the ordinary way through the liver, heart, arteries, emulgent veins, ureters, and bladder, is vaſtly longer, and more tedious: hence alſo the cauſe is ſeen, why, in a real diabetes, the drink ſo voided through the bladder in a very ſhort ſpace, as it is received, without change of conſiſtency, colour, taſte, or ſmell; hence too appears

pears the reaſon of the atrophia of the parts, eſpecially thoſe of the thorax, which draw the chyle out of the milky receptacles; for that they are ſometimes preſſed together, whereby the diſtribution of the chyle is obſtructed: ſometimes alſo they are inflamed, tumified, and afflicted with a ſchirrhus. Hence it is that lithontriptic or nephritic medicaments do preſently eaſe ſuch as have a pain in their reins: as likewiſe cantharides, and ſuch as excite to luſt, do immediately, without ſtopping the paſſage, come to the arteries emulgent and ſpermatic; becauſe that, in the accuſtomed journey, (much the longer way,) the virtue of the medicaments would eaſily be enervated. And here the reaſon is obvious why diuretic and nephritic medicaments make ſuch an impreſſion of ſmell and colour in urine, as is manifeſt in caſſia, turpentine, juniper, aſparagus, and other like things. Many of the lacteæ of the meſentery, coming through the greater glandules, and ſides of the portæ, are grafted into the liver. Their entrance is about the third lobe, to which many of the lacteæ from the meſentery and appendices of the ſtomach do come. From the upper part of the milky glandules, immediately under the diaphragma, there ariſe as many milky branches as there are glandules, which, through the middle of the *ſpina*, pierce the diaphragma, and, by mutual inſertion, two of them are joined about the firſt vertebræ of the loins; another branch coming out of the ſecond glandule, about the twelfth vertebra of the back, enters a little above the other inſertion; but the third, riſing from the third glandule, is to be ſeen near the eleventh vertebra, from whence it ariſes as a ſolitary branch, through the middle of the back, by the ſide of the aorta, and the vein azygos, between both, under the œſophagus, to which it is firmly knit by its membranes. Theſe milky *thoracics*, departing from the ſpinal, (about the third or fifth vertebra of the back,) through the midſt of which they crept all this way, turn a little to the left, and, creeping up under the œſophagus and aorta, and under the ſubclavial artery and the glandules of the thymus, they go forward to the left clavicula and left axillary vein; they enter the vein juſt where the outward jugular pours itſelf forth into the axillary aforementioned. From hence we learn, that theſe thoracics carry the chyle out of the milky glandules or receptacles of the meſentery to the ſubclavicals; but the *lacteæ meſeraicæ* carry the chyle from the inteſtines either to the receptacle or to the liver; alſo that the chyle goes not to the head nor to the joints, but is carried to the heart with the blood that runs down in circulation, where it is changed into the ſanguineous humour: and hence the lacteæ of the thorax receive their reſtorative force from nutriment, cordials, and medicaments, out of the ſtomach or œſophagus, by the glandulæ lacteæ, and carry them ſtraightway to the heart: whence it is, that drinking vinegar, wine, cordials, and other like things, ſo immediately

cauſes the ſtrength to be reſtored; and preſently at meat a man is ſtrengthened, and his hunger ſtayed; this virtue is conveyed by the milky branch which is near the œſophagus, and the ſhort paſſage of the reſt of the lacteæ, to the heart: alſo vulnerary potions and pectoral drinks come a ſhorter and ſurer way to the heart and lungs, to which, by the long way about through the bowels and veins, they could not come ſo ſafe and ſecure; and by the ſame reaſon poiſons as ſwiftly overcome the heart, infect the vital ſpirits, and deſtroy their harmony.

The liver is an organic part, and an inſtrument of the blood, (both for generating and perfecting it,) ſeated in the abdomen, juſt under the *diaphragma*, or midriff, in the right *hypochondrium*, about a finger's breadth diſtance therefrom; is covered by the ribs for ſafety, but covers, or lightly reſts upon, a great part of the ſtomach. It is divided as it were into two parts by the umbilical vein, which after the birth ſerves it for a ligament. It is ſaid to be the original or beginning of the veins, becauſe therein the roots of the two greateſt veins appear diſperſed, viz. of the *cava* and *portæ*, as roots implanted in the earth; alſo here are to be ſeen inſerted, trunks and branches of the *vena lacteæ*, ariſing from the *pancreas meſenterii*. It is a great, thick, and hard, body; of a red colour, conſiſting of a ſubſtance proper to itſelf, fitted and ordained for that end. It differs from the livers of beaſts, in that it has ſeldom any lobes, yet the hollow part of it has a fiſſure or chink, where the umbilical vein is implanted. Its magnitude is exceeding great, beyond all the other viſcera; and bigger in man than in any other living creature, the proportion of body being conſidered; and this ſeems to be neceſſary, conſidering the noble uſes and functions to which it is ordained. The action of the liver is ſanguification; for the chyle, being conveyed to the liver by the vena lacteæ, is there ſanguified, or made *chymus;* for the ſubſtance of the liver doth not only ſuſtain the veins, but is alſo the efficient of ſanguification, and of perfecting the blood by its circular motion; and, together with the blood, it generates natural ſpirits.

The gall-bladder and choler-channel are ſituated on the right ſide of the liver, in the under or hollow part thereof. The branches of both theſe, together with the branches of the *vena portæ*, are comprehended in a common bladder, called *capſula*. Theſe branches of the *veſica fellis*, and *ductus choledochus*, or *biliarius*, being detained in the liver, are diſperſed through its whole *parenchyma*, every where included in the aforenamed *capſula*, which is red, about the thickneſs of an artery, and takes its original from the *peritonæum*. The gall-bladder is a veſſel long and round, much like a pear, hollow, furniſhed with a double membrane. Its magnitude is ſmall, compared to the ſpleen or kidneys, being about two inches in length, and in ſome perſons nearly three inches. The uſe of the gall is, 1. to cauſe a new and more perfect fermentation of the chyle: 2. to prick the guts by its ſharpneſs,

to

to ſtir up their periſtaltic motion, that they may drive down the chyle, and expel the excrements; 3. to mix with the chyle in ſuch proportion, that, being converted into blood, the blood might thereby be kept from congelation.

To illuſtrate this ſubject more amply, we have ſubjoined a repreſentation of the liver of a new-born child, where AAAA repreſents the circumference of the liver; BBBB, the lower part of the liver, in which there are ſeveral irregularities; C, the gall-bladder; D, the umbilical vein, running with a ſingle trunk from the navel to the liver; EEE, the ſinuſes of the vena portæ, into which alone the umbilical vein inſerts itſelf, with a ſingle trunk; F, the trunk of the vena portæ cut off; GGGG, the principal branches of the ſinus of the vena portæ diſtributed through the liver, which become conſpicuous when a ſmall part of the ſuperficies of the liver is abraded off; H, the trunk of the vena cava; II, the canalis venoſus, or ductus venoſus, ariſing from the ſinus of the vena portæ; over againſt the ingreſs of the umbilical vein, and inſerting itſelf into the vena cava: this, in the uterus, carries a great part, and probably the greater part, of the blood which goes through the umbilical vein to the liver of the fœtus, by a large paſſage to the vena cava and the heart; but this, after the birth of the fœtus, gradually grows narrower and cloſes; K, the entrance of the umbilical vein into the ſinus of the vena portæ. To this deſcription of the external part of the liver, it may not be improper to add that of its blood-veſſels, together with their numerous ramifications, freed from the parenchymatous ſubſtance. Fig. 1. repreſents the under ſide of theſe veſſels; A, being that part of the liver which lies next to the back; B, its right ſide; C, its anterior edge; D, its left ſide; E, the vena cava, where it paſſes through the diaphragm; E 1, E 2, E 3, its three principal branches, diſtributed almoſt through the whole liver; F, the vena portæ turned upwards, that other veſſels may be more eaſily ſeen; F 1, F 2, F 3, F 4, four branches of the vena portæ diſtributed to ſeveral quarters of the flat part of the liver, but the fifth branch is not obſerved on this ſide; G, the gall-bladder; II, H, the vena umbilicalis become a ligament; I, the ductus communis choledochus; K, the canalis venoſus, now performing the office of a ligament; L, the trunk of the vena cava deſcendens; *a*, a ſmall portion of the membrane inveſting the liver; *b*, that part of the diaphragm which ſurrounds the vena cava; *c*, biliary duct; *d*, the cyſtic duct; *e*, the place where theſe veſſels meet; *f*, the hepatic artery; *o*, *o*, the hepatic nerves; *p*, *p*, *p*, *p*, the common capſula laid open; *q*, *q*, the lymphæducts; *m*, *m*, *m*, &c. the ſmaller branches of the vena portæ; *n*, *n*, *n*, the ſmall branches of the vena cava.

The ſpleen, or milt, is ſituated in the left ſide under the ſhort ribs, over

againſt the liver, and under the midriff, between the ribs and the ſtomach, near to the back part. Its colour in new-born infants is red, becauſe they have been fed with elaborate blood; but in thoſe of ripe age it is of a darkiſh red colour, and ſometimes almoſt blackiſh. It is connected by thin membranes ariſing from the peritonæum to the peritonæum itſelf, caul, and to the left kidney, and ſometimes alſo to the ſeptum or diaphragma. The action and office of the ſpleen is not to be either the receptacle or the place of the generation of melancholy, (as ſeveral learned men have thought,) nor to make blood, (as many others have imagined,) but to highly perfect the blood already made, that it may ſerve as a *fermentum*, both to the daily generated chyle and all the reſt of the blood in he body: the excrementitious blood, which cannot be ſeparated from the ſpleen, if it be thin and watery, is purged out, firſt by the arteries, not only to the guts, but alſo to the kidneys, by the emulgent veins; hence, in diſeaſes of the ſpleen, the urine is many times black, in which caſe we commonly adminiſter diuretics. Secondly, by the ſtomach; whence, in the ſcurvy and a quartan ague, the ſick ſpits exceedingly; but, if this excrementitious blood be thick and earthy, it is voided directly by the anus by proper arteries from the guts, by which means the ordure is black; as alſo by the internal hæmorrhoidal veins, as the great Hippocrates hath often ſhown.

The reins, or kidneys, are ſituated under the liver and ſpleen, by the loins, between the two coats of the peritonæum, at the ſides of the cava and aorta, under which very great nerves lie hid, and reſt upon the muſcles of the thigh: whence it is that, a ſtone being in the kidneys, a numbneſs is felt in the thigh and leg of that ſide. The left kidney is for the moſt part higheſt; the right is loweſt to give way to the liver, reaching by its end the third vertebra of the loins. They conſiſt of a ſubſtance ſolid, fleſhy, thick, hard, and compact, almoſt as the heart, but not ſo fibrous. They are connected by an external membrane from the peritonæum to the loins and diaphragm; by the emulgent veſſels to the cava and aorta; and by the ureters to the bladder. The right kidney is tied to the cœcum, ſometimes alſo to the liver; the left to the ſpleen and colon; hence pains of the reins are exaſperated by plenty of wind and excrements. The colour of the fleſh of the kidneys is red; and through their hollowed ſides are carried the emulgent veins and arteries, proceeding from the trunks of the cava and aorta: they have alſo emulgent arteries, which are large, and derived from the trunk of the aorta, which carry blood for nouriſhment, and that therefrom the *ſerum* (which is plentiful in the arterial blood) may be ſeparated; they have alſo one very ſmall nerve on each ſide, which ſprings from the ramus ſtomachicus, proceeding from the par vargum, and is inſerted into the proper membrane of the kidney;

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whence ariſes the ſympathy between the ſtomach and reins; and that they who are diſeaſed in the kidneys, by the ſtone or ſome other diſtemper, are for the moſt part ſick at ſtomach, and troubled with vomiting. The uſe of the kidneys is to attract the ſanguineous ſeroſity by the emulgent arteries, that ſo the maſs of blood may be cleanſed: which blood, going through theſe veſſels, is always carried through the branches of the emulgents, diſſeminated abroad through the whole parenchyma of the kidneys, and runs at length into very ſmall paſſages, ſo that at laſt the wheyiſh humour is thruſt quite out into the fleſh of the kidneys, the good blood remaining partly to nouriſh them, and partly to return by the little emulgent veins, which are open into the cava, and ſo to the heart. The ſerous part is ſtrained through the papillary caruncles, which have holes into the branches of the ureters, and afterwards grow together into one cavity or expanſion of the ureter, into which the ſerum is emptied: through the ureters it paſſes into the bladder, where it becomes urine.

The *deputy-kidneys*, or black-choler caſes, are ſo ſeated, that they reſt upon the upper part of the kidneys, on the outſide, where they look towards the *vena cava*, being covered with fat membranes. In figure and ſubſtance they for the moſt part reſemble the kidneys, ſave that their fleſh is a little looſer: ſo that they ſeem like little kidneys reſting upon the great ones. They have an apparent internal cavity, furniſhed with a dreggy and black humour: and are ſtrongly connected, where they reſt, to the external membrane of the reins, and to the *ſeptum tranſverſum*, to which they commonly ſtick in diſſection.

The *ureters* are white veſſels, like veins, but thicker, whiter, and more nervous; conſiſting of a ſingle membranous ſubſtance, incloſed in a duplication of the peritonæum. They are as long as between the kidneys and bladder, and commonly as thick or wide as gooſe-quills: but in the diſſection of perſons troubled with the ſtone, they have been ſo wide as to admit of two fingers. Their origin is in the kidneys, within whoſe cavities they are divided into nine or ten little pipes or channels, which are fitted to the little fleſhy teats, or *caruncul æ papillares*, that they may diſtil the ſerum into the pelvis, or baſon, or large cavities of the ureters within the kidneys. The ureters, deſcending within the duplicature of the peritonæum, upon the muſcles of the loins, to the bladder, are inſerted obliquely into its neck; then, aſcending upwards between its membranes, they perforate the innermoſt coat together, and through the ſame hole they both enter the bladder: in the implantation of the ureters, two little membranes or valves are placed, like the valves in bellows, ſhutting up the paſſages of the ureters, ſo that the urine cannot go back. They receive ſmall veins and arteries from the neighbouring parts, and nerves from the *par vagum*, and marrow of the loins. Their uſe is to convey the urine from the kidneys into the bladder.

The *bladder*, or receptacle of urine, is ſeated between the duplicature of the peritonæum, in the cavity of the hypograſtrium, which is called *pelvis*, or the baſon: which in a man lies between the os pubis and inteſtinum rectum; in a woman, between the os pubis and the neck of the womb. Its figure is oval or globical, that it might hold the more; from the bottom it is by little and little ſtraitened into a narrow neck. Its magnitude is various; and, according to the greatneſs of the lungs, ſuch is the greatneſs of the bladder; and ſuch animals as have no lungs have no bladder: man, according to his magnitude, has of all living creatures the greateſt bladder. Its ſubſtance is partly membranous, for ſtrength ſake, as alſo that it might extend and wrinkle together. It has two membranes, and one muſcle, which moſt anatomiſts make to be a third membrane, and not a muſcle. The bottom is faſtened to the peritonæum, and to the navel, by a middle ligament called *urachus*, and the two navel-arteries dried up. The neck of the bladder is tied in men to the *inteſtinum rectum*; but in women to the *vagina uteri*, or neck of the womb, and to the neighbouring hip-bones. The bladder has three holes; two a little before the neck, where the ureters are inſerted, and a third in the neck, through which the urine is voided. The neck is fleſhy and fibrous, furniſhed with a ſphincter muſcle to purſe it up, that the urine may not paſs out againſt our will; in men, this neck is long, narrow, and wreathed. becauſe, being placed under the bodies which conſtitute the yard, it runs upwards under the ſhare-bones, from the fundament to the origin of the yard. In women it is ſhort and broad, ſtretched forth downwards, and implanted above into the neck of the womb. The bladder has arteries from the hypogaſtrica in men, and from thoſe which go from the neck of the womb in women; by theſe it is nouriſhed; it has veins alſo from the vena hypogaſtrica implanted into the ſides of its neck, variouſly diffeminated through the bladder, which are mutually conjoined one with another and with the arteries by open holes, that nutritive blood may return; and it has nerves from the par vagum, and from the medulla of the os ſacrum.

The ſpermatic veſſels, in men called *vaſa preparantia*, are two-fold, viz. the two ſpermatic veins, and the two ſpermatic arteries. The right-ſide vein ſprings from the trunk of the vena cava, a little below the riſe of the emulgent, otherwiſe it muſt go over the aorta, and then there would be danger of breaking; or, at leaſt, by reaſon of the pulſation of the artery, the venal blood might be hindered. Both the ſeminal arteries ariſe from the trunk of the aorta, about two inches diſtant from the emulgents: theſe veſſels, being a little diſtant one from another, are tied together by a thin membrane from the peritonæum. Theſe ſpermatic preparers are greater in men than in women, and the arteries are greater than the veins, becauſe very much heat, vital ſpirit, and arterial blood,

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are requiſite to make ſeed. Theſe veſſels are carried obliquely above the ureters to the groins; but in their progreſs they are joined by infinite anaſtomoſes or inoſculations: ſo that the arteries are ſo coupled within the coats of the veins, as if they were but one veſſel, and they are knit together by a membrane ariſing from the peritonæum, and afterwards carried to the beginning of the teſticles, like a tendril of a vine, being ſo interwoven that a curious eye cannot diſtinguiſh a vein from an artery. This intertexture of veins and arteries, being the twiſtings of the vaſa preparantia, makes a long, thick, glandulous, but hard, cord, called *corpus varicoſum*, which is without any remarkable cavity. Theſe veſſels do not paſs through the peritonæum, as in dogs, but are carried between its double coat, with a ſmall nerve from the *par vagum* and the muſcle *cremaſter*, and, paſſing to the bottom of the teſticle, end at the *vas deferens*. Theſe arteries carry blood and ſpirits (in whoſe admirable windings they are more elaborated) to the teſticles, from whom they have a virtue ſeminal: with this blood the ſtones are nouriſhed, and part of it becomes ſeed: the veins are cloſely interwoven with the arteries about the teſticle, and joined to them by mutual anaſtomoſe, that they may carry back the blood which remains under the left emulgent, or to the vena cava on the right ſide, from whence the ſpermatic vein commonly ſprings. If one or both the ſpermatic arteries be injured, or wanting, as they are ſometimes, ſuch perſons doubtleſs cannot get children, but muſt neceſſarily be barren.

The *teſticles* in men, are glandulous bodies, flaggy, ſpongy, ſoft, and white, without any cavity, full of ſmall veins and arteries, ſuch as are not in any other part of the body. Their figure is oval, but it ſometimes varies, according to the turgency of any of the neighbouring veſſels. The right teſticle is hotter, and better concocts the ſeed, than the left: becauſe the former receives the arterial blood immediately from the aorta, the latter from the emulgent. They are ſeated externally without the abdomen, under the belly, at the root of the yard, in the ſcrotum or covering: being commonly in men anſwerable to the bigneſs of a ſmall hen's egg. The membranes being taken away, the ſubſtance of the teſticle comes in ſight, upon which, athwart, is placed a ſmall body, called *corpus vermiforme*, to the one end whereof cleaves the *vas ſpermaticum deferens*, the carrying ſpermatic veſſel, which enters into the ſubſtance of the teſticle, and empties the ſeminal matter thereinto: from the other end ariſes the *vas ejaculatorium*, which in the beginning is full of turnings and windings, and cleaves firmly to the teſticle by its ends, being looſe, and ſeparate in its middle. They have veſſels of all ſorts, veins and arteries from the ſeminal veſſels, and a large nerve from the *par vagum:* ſometimes alſo they have two nerves from the twenty-firſt pair of the ſpinal marrow, which, being conjoined with the ſpermatic veſſels, are carried with them through the production of the peritonæum, and

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diſſeminated into the tunicles. They have on each ſide one proper muſcle, called *cremaſter* or *ſuſpenſor;* and a common muſcle, from the membrane of the ſcrotum, called *dartos.* The teſticles have alſo ſeveral tunicles, coats, or coverings; of which two are common, three proper to themſelves only. The firſt coat (which is to defend the part) is conſtituted of the ſkin and ſcarf-ſkin, and is called ſcrotum, or *burſa ſcroti,* becauſe it is like a purſe or bag: it is ſoft, wrinkled, and void of fat: having in its lower part a line according to the length thereof; which divides into a right and left part, and is called *ſutura,* or a ſeam. The ſecond common coat conſiſts of a fleſhy membrane, ſpringing from the membrana carnoſa, which is here thinner than in other places, and full of veins and arteries, and is called *dartos:* this by many is comprehended under the term *ſcrotum.* The firſt proper coat is called *vaginalis,* the ſcabbard-coat; and *elicoides,* from its thinneſs, which is yet ſtrong and full of veins, ariſing from the proceſſes of the peritonæum, and cleaving to the dartos by many membranous fibres, whence its exterior part is rough, its interior ſmooth. The ſecond proper coat is called *erythroides,* becauſe of its redneſs: it has ſome fleſhy fibres from the cremaſter, from which it is propagated, and is ſpread over the vaginalis. The third and innermoſt, called *albiginea,* ariſing from the coat of the ſpermatic veſſels, immediately encompaſſes the ſubſtance of the ſtones, and as it were binds the ſame, being white, thick, and ſtrong. The uſe of the teſticles is to elaborate the ſeed, and to make it, by their heat and inbred faculty: for the efficient cauſe of the ſeed is the proper parenchyma of the teſticles, both in regard of their hot and moiſt temper, and of their ſpecific property; for, the blood being prepared, they convert it into ſeed; what remains over and above ſerves for nouriſhment of the part, and the remainder is conveyed back, by the ſpermatic veins, to the heart.

The *vaſa deferentia* are the veſſels carrying away the ſeed; and theſe begin at the teſticles, and end at the root of the yard, whither they carry and ejaculate the ſeminal humour; being in number two, on each ſide one. Now theſe *vaſa deferentia,* called alſo *meatus ſeminales,* are divided into three parts; the beginning, middle, and end; under which are comprehended, the *paraſtatæ,* the *vaſa ejaculatoria,* the *veſiculæ ſeminales,* and the *proſtatæ.* The *paraſtatæ,* or aſſiſtants, are the beginnings of the *vaſa deferentia.* Their ſubſtance is of the middle nature, between that of the teſticles and that of the *vaſa ejaculatoria,* being within glandulous and ſpongy, but without membranous. They have their origin in the ſtones, making many anaſtomoſes there, with the *vaſa preparantia,* by means of innumerable ſmall pipes, or white fibres. The uſe of the *paraſtatæ* is to perfect and finiſh the ſeed, by a virtue which they receive from the teſticles; and, while the ſeed is lodged in them,

frequent luſt is not provoked. The *vaſa ejaculatoria* are the middle of the vaſa deferentia, properly ſo called; theſe convey the ſeed from the paraſtatæ or corpora varicoſa to the veſiculæ ſeminales. Their ſubſtance is white and nervous: their figure long and round, with an obſcure cavity or hollowneſs: their ſituation is partly in the teſticles, partly in the cavity of the abdomen, above the os pubis or ſhare-bone; for they run upwards, and are knit to the vaſa preparantia by a thin membrane, and ſo are carried along to the flanks and ſhare-bone, which for that purpoſe have a ſlight cavity. After being turned back downwards, they paſs above the ureters, and under the hinder part of the bladder; above the *inteſtinum rectum*, at the neck of the bladder, they are on each ſide widened, and there conſtitute the ſeminal bladders. *Veſiculæ ſeminales*, the ſeminal bladders, are the end or termination of the vaſa deferentia: after the conſtitution of theſe bladders, theſe carrying-veſſels are united into one ſmall paſſage, and are inſerted into the proſtatæ. Theſe bladders are many in number, like little cells, and ſeem to make on each ſide one remarkable great and winding one, for that they go one into another, much reſembling a bunch of grapes. Their ſubſtance is nervous, and they are ſeated between the ligaments of the bladder and the rectum, by the ſides of the vaſa ejaculatoria a little before the ſaid veſſels grow thick and unite. Their uſe is to contain the ſeed being perfected, and to reſerve the ſame till the time of coition, that ſo there may be a ſufficiency for generation. The *proſtatæ*, ſtanders-before, ſtoppers, or conductors, are two certain caruncles (in which the vaſa deferentia terminate) manifeſtly differing from the veſiculæ ſeminales in uſe, form, ſituation, and magnitude. Their ſituation is at the root of the yard, above the ſphincter of the bladder, on each ſide at the neck thereof. Their ſubſtance is ſpongy, yet harder and whiter than other kernels, and they are alſo covered with a thicker membrane, being of exquiſite ſenſe, that they might cauſe pleaſure in coition. They are flat before and behind, but round on the ſides; their magnitude is uſually as big as a walnut, and they are open by certain pores into the urethra or urinal paſſage, which is evidently apparent in ſuch as have died of a gonorrhœa, where they have been dilated, and in whom the ſeat of that diſeaſe did lodge. Their uſe is to contain a viſcous and ſlippery humour, to moiſten the urethra, for the more eaſy and ſpeedy paſſage of the ſeed; and they alſo ſerve to ſtay the involuntary effuſion of the ſeed, and to hinder its regurgitation being once emitted. They terminate in a ſmall caruncle upon the urethra, which as a valve ſerves to hinder the coming of urine into them: under and by this caruncle, on each ſide, there are inconſpicuous holes, or pores, through which the ſeed paſſes into the urethra, juſt as quickſilver paſſes through leather, which it does by virtue of its being replete with a vaſt quantity of ſubtil and penetrating ſpirits. In theſe pores

of the proſtatæ, and in the ſeminal bladders, the ſeat of a virulent gonorrhœa lies; and therefore, if they be broken, hurt, or dilated, either by a catheter putting into the bladder, or by any other means, there follows immediately an incurable gonorrhœa. The diſtance between the root of the ſcrotum and the podex is called *perinæum*: this, as well as the pubis and ſcrotum, is furniſhed with hair, becauſe glandules are placed here, which abound with plenty of humidity, a part of which they ſend to the ſkin for the generating thereof.

The *penis*, or yard, is an organical part, long, and roundiſh, but broader on the upper ſide than where the urethra is, being the male inſtrument of generation, and appointed for the evacuation of the ſeed and urine. It is ſeated under the os pubis, exactly in the middle, becauſe it is only one in number. Its magnitude is extremely various in different ſubjects, being for the moſt part larger than ordinary in little men; alſo in ſuch as have large noſes, for the proportion of the yard very much anſwers that of the noſe; in ſuch as have thick, full, large, beards; and in Ethiopians, or blackamoors. It conſiſts of a ſcarf-ſkin, fleſhy membrane, and a proper ſubſtance of its own; but is void of fat even in the fatteſt men, leſt thereby its moſt exquiſite ſenſe ſhould be dulled. Its proper ſubſtance is four-fold: firſt, the urethra; ſecondly, the glans; thirdly and fourthly, the two nervous bodies, one on each ſide. The *urethra*, or paſſage of the urine and ſeed, is a pipe of a nervous ſubſtance, of the ſame bigneſs from the neck of the bladder (to which it is joined) to the end of the yard, or beginning of the glans, for in the middle of the glans it has a greater hollowneſs. Its ſubſtance alſo is thick, looſe, and ſoft, like that of the two lateral ligaments or nervous bodies. This urethra has alſo two membranes, and a ſubſtance proper to itſelf. The one membrane is internal, thin, and of exquiſite ſenſe, with which alſo the glans is covered; this ſprings from the thin membrane which clothes the nerves of the yard: the other is external, more thick and fleſhy, and furniſhed with nerves: the middle part, which is its proper ſubſtance, is looſe, ſpongy, and black, that it may be diſtended or contracted with the other parts. In the beginning of its channel are thoſe pores through which the ſeed is ejaculated, as alſo a little membrane or caruncle like a valve ſtretched before it, to keep the ſeed and urine from returning into the ſpermatic veſſels. Its uſe is to be the common paſſage of the urine and ſeed.

Balanus, glans, the head or nut of the yard, is an hollowed kernel, wider in the middle than at the external orifice: of a globular form, even, and compaſſed with a circle or crown. Its ſubſtance is fleſhy, more ſolid than the reſt of the yard, of a moſt exquiſite ſenſe, and covered with an exceeding thin membrane, ſoft and red. It is covered with the reduplication of the external ſkin of the yard called *preputium*,

(*à putanda*, from cutting off,) the foreſkin: this is that which the Jews cut off in circumciſing. This ſkin is tied at the root of the glans, by a certain ligament, called *frænum*, the bridle, ariſing from a combination of the tendons of the muſcles of the yard, and a nerve, terminating in the extreme hollowneſs of the nut. The two nervous bodies, or hollow ligaments, one on each ſide, conſtitute the remaining and greateſt part of the yard; the whole ſubſtance whereof being like a thick ſpongy artery, ſtuffed with fleſh. Their external ſubſtance is long, thick, compact, hard, and nervous; their internal ſubſtance is ſpongy, thin, hollow, of a net-like texture, framed of innumerable twigs of veins and arteries, of a dark-red colour, inclining to black, and filled with a great abundance of black blood, very full of ſpirits, which, waxing hot, cauſes a diſtenſion and erection of the yard. Theſe two bodies (where they are thick and round) ſpring from the lower parts of the ſhare-bones, or hipbones, to which they are ſtrongly tied with two ligaments. In their beginnings they keep ſome diſtance, being ſeparated one from another, almoſt like a Y, that the urethra may paſs between them; but, when they ceaſe to remain perfectly ſeparate, viz. when they come to the joining at the ſhare-bone, they loſe near a third part of their nervous ſubſtance; yet they ſtill remain diſtinct by the coming between of a ſingle membranous partition, called *ſeptum lucidum*. This membrane is white, thin, tranſparent, and full of nervous fibres; it ariſes from the upper part of the commiſſure of the os pubis, and upholds the ſaid two lateral ligaments, and the urethra, as a ſtay, the like of which is alſo found in women. The yard has all ſorts of veſſels, as veins, 1. external, running up and down in the ſkin, from the pudenda; 2. internal ones, from the venæ hypogaſtricæ, which are ſpread through its whole body. It has arteries, two internal remarkable ones, ariſing from the hypogaſtrica, which are inſerted into the beginning of the growing together of the two nervous bodies, which are ſcattered up and down according to the length of the part: but in the middle, where the ſeptum lucidum is thinneſt, they ſend branches through the ſpaces of the fibres, the right artery into the left nervous body, and the left into the right, carrying ſpirits and blood to fill up, erect, and nouriſh, the yard. It has two nerves from the marrow of the *os ſacrum*, which diſſeminate themſelves through all parts of the yard, both internal and external; aſcending through the middle of the forked diviſion, they ſpread themſelves into the muſcles, the whole body of the yard, and the glans, that there might be an exquiſite ſenſe and delectation. It has alſo four muſcles, two erectors, and two accelerators or ejaculators, under which muſcles lie hid the two nervous bodies.

The ſpermatic veſſels in women are the ſame with thoſe in men, and agree in their number, nature, original, and office; but they differ from thoſe in men in the following.

following things: firſt, they differ in their longitude; in women they are ſhorter, by reaſon of the ſhortneſs of the paſſage, but they have more wreathings, windings, and turnings, where they make the corpus varicoſum about the teſticle, that the ſeed may have a ſufficient ſtay for its due preparation; ſecondly, in their inſertion; in women they paſs not whole to the teſticles, as in a man, but are divided in the midway: whence the greater part goes to the teſticles to form the corpus varicoſum; the ſmaller part of the womb, into whoſe ſides it is diſſeminated, eſpecially to the upper part of the bottom, to nouriſh the womb, and the child therein; and that by thoſe veſſels ſome part of the menſtrual blood may be purged forth in ſuch as are not with child. This ſmaller part is tripartite, being divided below the teſticle into three branches, of which one runs out into the womb, as aforeſaid: the ſecond is diſtributed to the *vas deferens*, or trumpet of the womb, and to the round ligament: the third creeps along the ſides of the womb, inſinuating itſelf along the venæ hypogaſtricæ, with which and the arteries they are joined by anaſtomoſes; thirdly, the ſpermatic veins receive the hypogaſtric arteries as they paſs by the ſides of the uterus, that the blood might be the better elaborated; and they are intermixed with many wonderful anaſtomoſes for the preparation of ſeed.

The teſticles in women differ from thoſe in men in theſe following things: 1. in ſituation, for they are placed within the hypogaſtrium, about two inches above the bottom of the matrix, in ſuch women as are not with child, being tied by certain ligaments. 2. in magnitude, for they are leſs than the teſticles in men; and by reaſon of their heat they are contracted after the woman is fourteen years of age; whereas, before that age, they are more large, being full of white juice: 3. in their ſurface, for they are more uneven than thoſe of man: 4. in their figure, for they are more broad and flat on the fore and hinder parts; they are alſo more hollow, and fuller of ſpermatic moiſture: 5. in their ſubſtance, being ſofter; and, if you take off the membrane, you will find them conglomerated or knobbed together of divers little kernels or bladders, five or ſix, or more, which contain the thick ſeed: 6. in their membranes or coats, for, whereas men's have four tunicles, theſe have but one, becauſe they are in a cloſer and warmer place; this ſingle coat is called by Galen *dartos*; but where they receive the ſeminal veſſels, they are half covered over with the peritonæum: 7. in their connection, for they are knit to the ſides of the uterus by two manifeſt paſſages, viz. by the two upper ligaments, which are looſe and membranous, and out of which, in the time of coition, the ſeed is caſt: 8. in their appendices, theſe having no paraſtatæ, nor any cremaſters; but are ſtayed by the broad lateral ligaments, called bat's wings. Their uſe is, the ſame as in a man, to make, elaborate, and perfect, the ſeed.

The

The *vaſa deferentia*, in women, ſpring from the lower part of the teſticles, and are either inſerted with a very ſhort paſſage into the bottom of the womb, or diſſeminated at the trumpets of the womb, with ſundry exceeding ſmall ſprigs, not much unlike the venæ lacteæ, ariſing from the vaſa preparantia, and continued with them, though here changing their name and uſe. Their ſubſtance is firm, white, and nervous. They paſs by the membranous ligaments to the matrix, not ſtraight, but wreathed or twining, with a multitude of windings; that the ſhortneſs of the way might be recompenſed by ſuch a labyrinth. Near the teſticles they are broad; afterwards they become narrower, and ſmaller; and about the womb they become broad again, and are inſerted into the cornua, and capacity of it. Their uſe is partly to carry the ſeed to the trumpets of the womb, to be there farther perfected, and better elaborated, and to be kept for uſe: and partly to carry it to the bottom of the womb, where another branch runs into the neck, by which way alſo the ſeed is voided, cauſing (by reaſon of the length of the way) the greater delectation. The *tubæ fallopianæ* (ſo called from their likeneſs to a trumpet of war) are two in number, one on each ſide, of a nervous, white, thick, and hard, ſubſtance; and of a figure long, round, and hollow. Theſe Spigelius calls *vaſa cæca*, becauſe they have but one oriſice. They ariſe from the bottom of the womb, at one end, and, when they have gone a little therefrom, they grow broader by little and little, criſping themſelves like the tendrils of a vine, till they come towards their ends. Then, diſmiſſing their wrinkled criſpations, and becoming very broad, they end in a certain extremity which ſeems membranous and fleſhy by reaſon of their red colour, and at laſt become very torn and jagged, having large holes which lie always ſhut, thoſe gagged ends ever falling in upon them, which notwithſtanding, if they be opened and widened, repreſent the broad end of a brazen trumpet. They paſs obliquely from the cornua over againſt the teſticles, being carried by a membranous ligament, and (as it were) half compaſs the teſticles, but are diſtant from them every where about half an inch, they neither proceeding from the ſtones nor being inſerted into them; and, as in their beginnings they are open, ſo in their endings they are ſhut up and blind, not reaching to or being inſerted in any other part. They are commonly faſtened by very thin membranes, not much unlike the wings of bats or flittermice, through which many veins and arteries are diſſeminated from the teſticles into their hollowneſſes; by which the ſeed is conveyed from the teſticles into theſe *tubæ* or trumpets. Their inſertion at the bottom of the womb is large, whence ſprings a nervous pipe, ſtretched out nearly to the middle of the trumpet, that by it the ſeed may be ſent into the bottom of the womb: their middle is capacious, with certain little cells or bladders, containing white ſeed; after which they are

wreathed and criſped: their end is narrower again, and blind as aforeſaid. Now what the *veſicæ ſeminales* are in men to preſerve the ſeed, ſuch are theſe blind paſſages in women: for they are annexed to the teſticles by the aforeſaid little membranes, through which many little veins paſs, and by which the concocted ſeed is carried, and here laid up as in a ſtore-houſe, where alſo, by the irradiation of the virtue of the teſticles, it is yet better digeſted, and made more perfect; from whence, in the time of coition, it is by the *cornua* ſent into the cavity of the womb.

The *uterus*, *matrix*, or womb, is an organical part, the receptacle both of the ſeed and of the child: and it is ſituate in the middle of the *hypogaſtrium*, called *pelvis*, the baſon, by the *os ſacrum* and flank-bones, between the *inteſtinum rectum* and the bladder. Its magnitude, even in virgins of big ſtature, exceeds not the ſize of a walnut: but in women with child it dilates itſelf into ſuch a capacity as to contain the child: Nature made it at firſt ſmall, that it might embrace the yard, and cheriſh the ſeed, becauſe it is but little in quantity. Its figure is ſaid to reſemble a pear; but the neck thereof reſembles an oblong and round pipe or channel. Its connection is either by the neck or the bottom: the neck is knit by its own ſubſtance, and by membranes; but the bottom by peculiar ligaments. On the fore ſide the neck is joined to the *veſica* and the *os pubis*, by membranes from the peritonæum; on the hind ſide, to the *os ſacrum* and *inteſtinum rectum;* but about the *vulva* it grows together with the anus; on the ſides it is looſely-joined by membranes to the peritonæum. The *fundus*, or bottom, is not tied by its ſubſtance, but is free; but in its ſides it is faſtened by two pair of ligaments, which keep the womb ſuſpended or hanging looſe. The upper pair is broad and membranous, which are joined to the *os ilium*, and end in the bottom, near the *cornua:* they are ſoft and looſe, that they may diſtend or contract; and by Aretæus they are likened to the wings of bats: if theſe ligaments or muſcles be looſened or broken, by difficult labour or other violence, it may cauſe the falling down of the womb. The two lower ligaments are red like muſcles, and round like earth-worms, and pervious to the clitoris, from whence, (like a gooſe's foot,) deſtitute altogether of their hollowneſs, they ſpread themſelves upon the fore part of the thigh. Theſe ariſe from the ſides of the bottom of the womb, touching at their beginning the *vaſa deferentia;* then, aſcending to the groins, they paſs through the productions of the peritonæum and the tendons of the oblique deſcendent muſcles of the belly, and are partly obliterated in the membranes of the bones near the clitoris, where they are joined, degenerating into a broad nervous thinneſs, almoſt like a gooſe's foot, as aforeſaid; and partly run through the inner part of the thigh to the knee: hence it is that women in their firſt months going with child complain of a pain in the inſide of their thighs. The ſubſtance of the womb is membranous,

membranous, that it may be diſtended or contracted as need ſhall require; it is full of wrinkles, which in women impregnated are extended to widen the womb, which, after excluſion of the child, as alſo in age, are again contracted. The membranes of the womb are two, one common, the other proper. The common is doubled, and grows to the ſides on each hand: it ariſes from the peritonæum, and is exceeding thick, firm, ſtrong, ſmooth every where except where the ſpermatic veſſels enter, or the ligaments go out. The proper and internal membrane is alſo double, between both which there are fleſhy fibres, ſuch as are found in the ſtomach, with alſo here and there a kind of ſpongy ſubſtance. The womb has veins and arteries accompanying one another, which are carried between the tunicles or coats thereof, and caſt out their blood into its membranous pipes, but not into its innermoſt cavity: theſe veſſels ariſe from above and beneath, viz. from the upper and the lower parts of the body; for the blood ought to come from the whole body, that the whole may by the monthly terms be purged, and that, in the time when a woman is impregnated, the child might be nouriſhed. Thoſe which deſcend from above run all the womb over, eſpecially in the fundus or bottom, being derived from the ſpermatic veſſels, or thoſe by which the vaſa preparantia are conſtituted, as alſo from the hæmorrhoidal branch, whence is the great conſent between the womb and the ſpleen: the left ends alſo of the veins and arteries are joined with the right ends, that the right ſide may be ſupplied with plenty of blood. Through the arteries (in women not with child) the menſtrual blood always flows: what is not thus evacuated returns back again to the heart by the veins, which are joined to the arteries by many anaſtomoſes. The veins and arteries that come from beneath, which are larger than the former, ſpring from the *ramus hypogaſtricus* of the *cava* and *aorta*, and, running through the neck of the womb and lower part of the bottom, are every where joined with the ſuperior ones by manifold anaſtomoſes. The mouths of theſe veſſels enter into the cavity of the fundus, which, in the time of the flowing of the terms, are opened, and gape, and, becauſe they reſemble cups or ſaucers, are called *acetabula* or *cotyledones:* to theſe, when a woman is with child, the *placenta* is joined, which receives the blood for nouriſhment thereof. And, becauſe theſe branches are carried to the neck of the womb, by them women which are with child ſometimes alſo void their courſes. It is furniſhed with many nerves from the *par vagum*, and the nerves of the os ſacrum, which run to the os uteri and parts about the *vulva* for delectation ſake, and to the lower part of the fundus, as alſo to the upper part thereof, where they are interwoven like a net; hence ariſes the great ſympathy between the womb and the brain. The uſe of the womb is to attract, receive, retain, preſerve, and cheriſh, the ſeed, in order to conception; and after conception to contain and nouriſh the fœtus till the time of

birth. The ſhort neck of the womb, which is its inner neck, is that which contains the oriſice leading immediately into the cavity of the womb; this orifice is a hole not large, but ſuch as may admit a probe or large quill, and like a mouth may be dilated or purſed in; this entrance is but a tranſverſe line, which when it is exactly opened becometh round: this hole after conception is ſo cloſely ſhut, that it will not admit the point of a bodkin; but at the time of delivery it opens itſelf wide, according to the magnitude of the infant, be it ever ſo great. The cavity of the neck is rough, ariſing from wrinkles, whoſe edges tend inwards, leſt the ſeed which has been caſt in ſhould flow out again, as is ſeen in ſuch barren women as have the ſlipperineſs of the womb. The *fundus*, or bottom, is the moſt capacious part of the womb, ſeated above the os pubis, that it may be there diſtended. The external ſurface of the womb is ſmooth and even, covered as it were with a kind of humidity: its inner ſurface is full of poroſities, which are mouths through which, in time of a woman's breeding, blood paſſes out of the veſſels of the womb, to nouriſh the child. Within the orifice of the inner neck grows a caruncle, which exactly ſhuts the hole; in which caruncle are to be ſeen pores which ſeem to be at the end of the *vaſa deferentia*, terminating at the neck. This neck of the womb is opened in ſuperfœtation, in an abortion, in an ejection of a falſe conception, but eſpecially after a wonderful manner at the time of child-birth, when it is widened according to the magnitude of the child: at this (ſaith Galen) we may wonder, but we cannot underſtand it; therefore it is our duty to acknowledge the wiſdom and power of him that made us. The external or greater neck of the womb, called *ſinus pudoris*, is a long channel, hollow, (even while the child is in the womb,) and ſituate between the vulva and internal orifice of the womb, being that paſſage which receives the penis in coition. Its figure is long, (nearly ſeven inches,) hollow, (large enough to entertain the penis,) and wrinkled within: but its length and wideneſs are hardly determinable: ſome ſay it is as wide as the inteſtinum rectum, but it is longer or ſhorter, wider or narrower, according to the luſt of the woman, the penis being always, in coition, cloſely embraced by it. Its ſubſtance is a hard and nervous kind of fleſh, and a little ſpongy like the yard, wrinkled within (chiefly in the upper part) that it might be occaſionally dilated. Laſtly, towards the middle or external part of this greater neck, in the fore and upper part, near the vulva, is the inſertion of the bladder into ſight, that from thence the urine may be voided by the meatus urinarius, which is ſhort and ſtrait, but dilatable; it is without covered with a fleſhy ſphincter, but within black, and of the ſame ſubſtance with the urethra in men.

The membrane called the *hymen* is the ſign or flower of virginity, becauſe it can be found in none but virgins: it is called the flower of virginity from the

blood

blood which which flows in the firſt action of coition. That there is ſuch a thing is not to be doubted; it was the legal ſign of a virgin among the ancient Hebrews, as Moſes has at large declared, Deut. xxxii. 13-21. Secondly, it was a received and known thing in all the eaſtern countries, as Leo Africanus affirms; and the greateſt anatomiſts conclude, that in virgins who have uſed no violence to the part, nor have it fretted, eaten, or broken, by any defluxion of ſharp humours, it is never wanting. What it is, we now come to enquire into. Firſt, ſome ſay it is a tranſverſe membrane, and they are indeed in the right: but they who would have holes in it, like a ſieve, are deceived. Secondly, others ſay it is a tranſverſe membrane, going acroſs the neck of the womb, a little above the neck of the bladder, which reſiſts the firſt entrance of the penis. Thirdly, Sebizius ſaith, that, if this membrane is abſent, we muſt reſt in the ſtraitneſs of the neck and other marks, which being widened in the firſt coition, pain and effuſion of blood follow, by reaſon of the ſolution of the continuity. Fourthly, Severinus Pinæus (whoſe opinion is the neweſt of all) ſaith, that the four myrtle-ſhaped caruncles, tied together by a ſmall membrane, placed in the outer part of the neck of the womb, are the true hymen ſo much ſought after; and without doubt Pinæus is in the right: to this Bauhinus agrees; and Bartholinus ſaith, that he could find no other in a young girl carefully diſſected. It is ſituate in the neck of the womb, juſt behind the inſertion of the neck of the bladder, or a little more inwards; but its ſituation does now and then vary a little: there this membrane goes acroſs the cavity, much like the diaphragma, or midriff. As to its figure, it has a hole in its middle, big enough to receive a pea, by which the menſtrual blood paſſes: if it be without any hole, ſo that the courſes cannot flow, thence come diſeaſes, and (if it be not opened) at laſt death. It is connected orbicularly to the neck of the womb, as if it grew out of the ſame, where it is thicker than in the middle: its ſubſtance is partly membranous, partly fleſhy, yet not very thick: it is interlaced with many little veins, which being broken in the firſt coition, pain and bloodſhed follow, even as they do in ſome men, where the frænum or bridle of the penis (being exceeding ſhort and ſtraight) is torn or rent aſunder. Its uſe is to defend the internal parts from injury; as alſo to be the ſign of virginity.

The *vulva* is the external privity, which is that which offers itſelf to ſight before diſſection, being located under the fore-region of the os pubis. The more principal internal parts are the wrinkled chinks, the four myrtle-ſhaped caruncles, the orifice of the urinary paſſage, and the clitoris: the more external parts are the wings, the lips, the great chink, and the pubes or hairy part. The wrinkled and inward chink is the immediate mouth of the larger neck of the womb, lying behind the myrtle-ſhaped caruncles: it is of a reaſonable largeneſs, and framed by nature to ſtay the

ſeed caſt into the neck from too quickly ſlipping out. The myrtle-ſhaped caruncles are placed ſo as to appear in a quadrangular form, one at each corner: one of them is placed before or above in the circumference of the hole of the urinary paſſage to ſhut the ſame, it being largeſt, and forked, that it might receive the end of the meacus urinarius, and hinder external things from entering: the ſecond is oppoſite to the former, and is ſituate below: the two remaining ones are placed collaterally: their figure reſembles a myrtle-berry: their magnitude is various in different ſubjects: their ſubſtance is framed of the reduplication of the fleſhy neck of the womb, being partly fleſhy, partly membranous: they are connected with membranes or valves: their uſes are for titillation in the time of coition, and alſo immediately to ſhut the orifice of the neck, that air, duſt, nor any other matter, may enter. The orifice of the urinal paſſage, is a hole under the clitoris above the neck: through this women make water, and it ſeems to be ſhut with a kind of fleſhy valve.

The *clitoris* is called by ſome *nympha*, by others *tentigo*, by others the woman's yard, becauſe it reſembles a man's yard in figure, ſubſtance, compoſition, repletion with ſpirits, erection, and ſituation. Its figure is ſomewhat like the glans and præputium of the penis; but it is commonly ſmall, being ſeated in the middle of the os pubis in the upper and former end of the foſſa magna, where the alæ or nymphæ meet; but in its beginning for the moſt part it lies hid under the nymphæ, and afterwards ſticks out a little. Its ſubſtance is like that of a man's yard, conſiſting of two nervous bodies hard and thick, but within full of a black ſpungious matter, as in the lateral ligaments of the yard. The two lateral ligaments ariſe from the internal knob of the iſchium: the third is between theſe, ſpringing from the joining of the os pubis. Its muſcles are the ſame in nature and number with thoſe of a man. Its extremity is the glans, which has a ſuperficial hollowneſs, but not bored through; this is covered with a very thin ſkin as a preputium, which ſprings from the joining of the nymphæ. It has veins and arteries, common to it and the privity, and a nerve from the par vagum larger than its body might ſeem to require, to give it an exquiſite ſenſe, and cauſe erection. In this is the ſeat of delectation and luſt. The *alæ* or *nymphæ*, commonly called wings, appear when the two lips are ſevered, being two productions made of a ſoft and ſpongy fleſh, and the reduplication of the cutis, and ſituated at the ſides of the neck between the two lips: being joined above, they compaſs the clitoris: they are in number two; in colour red like a cock's gills; in figure almoſt triangular, but much reſemble a cock's comb; in ſubſtance partly membranous, partly fleſhy. Their uſe is the ſame with the caruncles, as alſo to convey the urine ſtraight out, that it might not wet the lips. The *labia*, or lips, are two in number, by which the internal parts are covered: they are conſtituted of the common teguments

ments of the body, and a great deal of ſpongious fat: the lower joining of theſe lips is in virgins ſomewhat ſtraight, and ſeems of a ligamentous ſubſtance for firmneſs, but in married women it is looſe, and in ſuch as have had a child ſtill looſer. The *foſſa*, or *rima magna*, begins at the os pubis, and is not much above an inch diſtant from the anus, which being much larger than the inner chink, or cavity of the neck of the womb, this is ſeen as ſoon as ever the lips are drawn aſide: in the foſſa, the lips being opened, two holes appear, (but ſcarcely viſible,) out of which a whitiſh or wheyiſh juice iſſues. In this foſſa, are alſo two collateral chinks, the right and left, which are between the lips and the wings. The *pubes*, called alſo *monticuli veneris*, is the part where the hair grows, and is properly termed the privity: being longiſh hillocks, ſoft, and of a ſubſtance the like whereof is not to be found again in the whole body, being partly ſkin, partly ſpongy fleſh, placed upon a portion of hard fat.

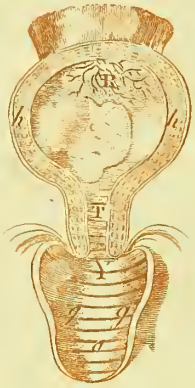
The membranes infolding the child in the womb, are the firſt things which are bred in the womb after conception, to defend the more excellent part of the ſeed: their efficient cauſe is the formative faculty, joined with the heat of the womb: theſe in human kind are in number only two, viz. the *amnios* and the *chorion*, to which latter belongs the *placenta*, or womb-cake. All theſe together make that which we call *ſecundine*, or after-birth. It is ſo called, becauſe it is the ſecond habitation of the child next the womb; and alſo becauſe it comes away by a ſecond birth, after the child or firſt birth. *Amnios* (from its ſoftneſs and thinneſs) is the firſt membrane; it is the thinneſt of the tunicles, white, ſoft, tranſparent, and furniſhed with ſome low ſmall veins and arteries, which are diſperſed within its foldings. It compaſſes the child immediately, and cleaves almoſt every where to the chorion, eſpecially at the ends; and is united in the middle thereof, about the placenta, where the vaſa umbilicalia come forth, but is eaſily ſeparated from the chorion. It contains within it plenty of humidity and humours, in which the child does as it were ſwim, that ſo, 1. the child, floating therein, may be the higher, and leſs burthenſome to the mother. 2. That the child may not ſtrike againſt any of the neighbouring hard parts. 3. That the membranes being broke, and this humour running out at time of birth, makes the child's way, through the neck of the womb, ſmooth, ſlippery, and eaſy. This humour thus falling, is what midwives call the breaking of the water. Part of the amnios does now and then hang about the head of the child, and then the infant is ſaid to be born with a caul: ſome take this for a preſage of good, ſome of evil, ſome of ſhort life, ſome of long, but it has a relation to none of theſe things, for it has been found on the heads of both happy and miſerable, and of both ſhort and long lived, perſons. *Chorion* is the ſecond membrane, and compaſſes the child like a circle;

circle; this immediately compaſſes the former, and lies beneath it, whoſe inner and hollow part it envelopes, extending itſelf according to the magnitude thereof: it is with ſome difficulty ſeparated from the amnios, and ſtrongly bears and unites the veſſels to the placenta. That ſide next to the child is ſmooth and ſlippery; the other ſide is fixed immediately to the womb by the ſaid placenta, which is commonly on the upper and fore ſide: it does not encompaſs the whole child, being conſtituted of an innumerable company of veins an arteries, between which blood out of the veſſels ſeems to be ſhed. The *placenta uteri*, or womb-cake, (becauſe of its ſhape,) is a round maſs of fleſh, furniſhed with divers veſſels, through which the child receives its nutriment. Its ſubſtance ſeems to be conſtituted of an infinite number of little fibres, with congealed blood interpoſed. It has veins and arteries running through it from the umbilical veſſels, which are at length loſt about the edges of the placenta, making wonderful contextures, and cloſely knit to the ſubſtance thereof, being joined together by various anaſtomoſes, through which the blood in the child runs back out of the arteries into the veins. It is, firſt, to be a ſupport to the navel veſſels under which it lies: ſecondly, to prepare blood to nouriſh the child, as the true liver does in grown perſons. This blood it ſucks out the veins of the womb, and, preparing it for uſe, ſends it through the greater umbilical vein to the liver of the child, that ſo it may be carried to the heart, out of which it is ſent by the arteries into the whole body of the child for nouriſhment.

The umbilical or navel veſſels (ſo called, becauſe, the child being excluded, they are all found to centre in its navel) are in number four, viz. one vein, two arteries, and the *urachus;* all which are covered with one common membrane or coat, which both incloſes all thoſe veſſels, and diſtinguiſhes them one from another, that they might neither be entangled or broken. The navel vein, paſſing through the two coats of the peritonæum, is inſerted into the liver by a cleft, going through the navel, ſometimes ſingle and ſometimes double. It is about five feet and a half in length, being meaſured to the placenta: it is variouſly rolled or twiſted about, that its length might not prove troubleſome: from the navel it goes over the breaſt, from whence it is obliquely carried over the right and left ſides of the throat and neck, turning itſelf back at the hinder part of the head, and ſo over the middle of the forehead to the placenta: ſometimes alſo it encompaſſes the neck like a chain, all which you are to underſtand of the whole cord or navel-ſtring, with the reſt of the veſſels contained therein. Its uſe is to convey the maternal blood from the placenta, through the navel, to the child, for its nouriſhment. In this navel-ſtring there are knots tranſparent in the veins, but not in the arteries, which are nothing but a more thick and fleſhy conſtitution of the membrana carnoſa in thoſe parts.

The Kidnies, &c.

Fig. I.
The Male.



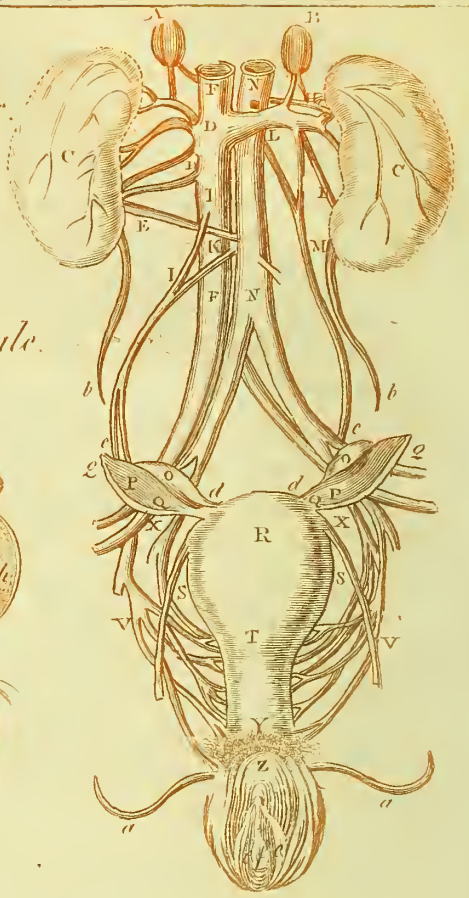
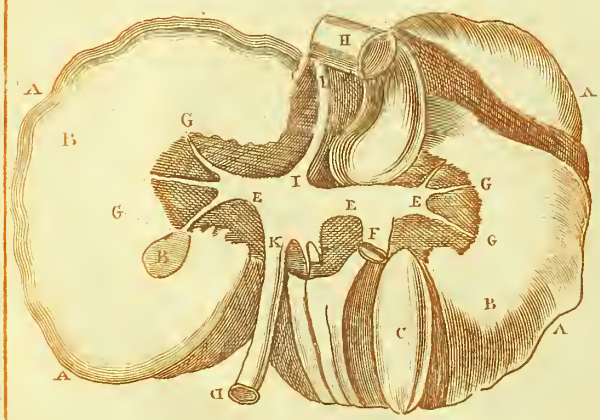


Fig. II.
The Female.



Liver of a new-born child.

Blood Vessels of the Liver

from the number of theſe knots midwives pretend to foretel how many children a woman ſhall have; but theſe are vain divinations, for there are often more knots in the navel of the laſt child than of the firſt. It is about five feet and a half or ſix feet long, and about the thickneſs of a man's finger: when it is dry it becomes ſmaller, and is kept as a precious thing to haſten the birth in other perſons. The child being born, this navel-ſtring muſt be tied with a ſtrong thread wound often about, the diſtance of two or three inches from the belly of the infant, and about three inches from the binding it muſt be cut off: afterwards the navel is to be carefully looked to till it is dry, and falls off of its own accord. Theſe veſſels, after the child is born, do, within the abdomen, degenerate into ligaments: the vein to a ligament of the liver, and the arteries into lateral ligaments of the bladder, becauſe their uſe is now aboliſhed, there being no longer any paſſage of the mother's blood. The *urachus* is a little cord or ligament, by which the bladder is ſuſtained and faſtened to the peritonæum, that, being diſtended with urine, its neck might not be compreſſed, which thing alſo is done by the arteries. Hence it appears, that the urine of a child in the womb is certainly voided by its yard into the membrane amnios, (whence it is that it is ſo full of water,) a great part of it yet remaining in the bladder, which is the cauſe that always new-born children are for the firſt days continually making water. If the urine were not in part thus avoided, the bladder would not only be over-ſtretched, but broken.

To illuſtrate what has been ſaid, the annexed Plate exhibits the Kidneys, Bladder, and Organs of Generation, of the Human Species, both Male and Female. Fig. 1 repreſents the Male. A A are the kidneys; B B, the glandulæ ſuccenturiatæ: C C, the emulgent veſſels: together with thoſe diſtributed over the membranes of the kidneys: D D, the hypogaſtric veſſels, which, branching off from the iliacs, are diſtributed into the urinary bladder and penis: E E, the courſe of the ureters: F F, the courſe of the ſpermatic veſſels, in which ſeveral appear cut off, being thoſe diſtributed in the peritonæum; G, the urinary bladder; H H, the vaſa deferentia; I I, the teſticles; K, the urachus cut off; L, the penis erected or diſtended; M M, the erector muſcles.

Fig. 2 repreſents the Female; in which A, B, denote the capſulæ atribiliariæ; C C, the kidneys: D D, right emulgent veins; E E, right emulgent arteries; F F, vena cava, divided into the iliac branches; G, left emulgent vein; H, left emulgent arteries; I I, right ſpermatic vein; K, right ſpermatic artery; L, left ſpermatic artery; M, left ſpermatic vein; N N, aorta, divided into its iliac branches; O O, women's teſticles; P P, a part of the broad ligament, or bat's wings; Q Q, the trumpets of the womb on both ſides; R R, bottom of the womb, ſhowing the placenta formed, and the embryo perfected; S S, round

ligaments of the womb cut off at the ſhare; T T, neck of the womb; V V, venæ hypogaſtricæ; Y Y, the paſſage of the womb; Z, the clitoris and præputium: *a a*, a portion of the ureters cut off; *b b*, a portion of the ureters deſcending cut off; *c c*, vaſa preparantia dilated; *d d*, vaſa deferentia; *e e*, the nymphæ; *f*, the meatus urinarius; *g g g*, the vagina laid open, with its plicæ; *h h*, the uterus, as ſtretched in the third month of pregnancy, with the placenta adhering to the fundus.

Of the THORAX.

The thorax, cheſt, or breaſt, is that which is called the middle ventricle, being circumſcribed above by the claviculæ; beneath by the diaphragma; on the fore ſide by the ſternum; on the hinder part by the back-bone; and on each ſide by the coſtæ, or ribs. Its ſituation is between the upper ventricle, or head, and the abdomen, being the ſeat of the vital ſpirits, and conſiſting of the parts appointed for the cheriſhing the natural heat. Its figure is almoſt oval, ſomewhat flat before and behind, whereas in beaſts it is ſomewhat ſharp, ſo that mankind only lies on the back. Its ſubſtance is partly bony, partly fleſhy; bony, becauſe it contains not any parts much to be diſtended; fleſhy, becauſe it contains parts which ought to be moved, as the heart and lungs.

The breaſts, or dugs, are common to both ſexes; in men they are framed of the cutis, the membrana carnoſa, fat, and the nipple, and are called *mammillæ*. The dugs in women have beſides many remarkable veſſels, glandules, and pipes, to make and contain milk. The nipple or teat, called *papilla*, is ſpongy, like the glans of a man's yard, and perforated through the middle with many ſmall holes for the milk to paſs through. It is rougher than the other parts, that the infant may the more firmly hold it, and of an exquiſite ſenſe, that the nurſe ſhould find pleaſure when ſhe gives ſuck: round about it there is a circle, called *areola;* in virgins it is pale and knotty; in nurſes, brown; and in old women, black. The veins are two-fold, viz. external and internal: the external ariſe from the axillary, and are placed under the ſkin which moves the dugs, and are, called *thoracicæ ſuperiores*, the upper breaſt-veins: theſe, in women with child and ſuch as give ſuck, are often ſeen very blue. The internal ariſe or deſcend from the trunk of the axillary vein, or ramus ſubclavius; and are called *mammariæ venæ*, or dug-veins: theſe are met by other aſcendant veins from the womb, and therefore, the child being born, the blood is carried no longer to the womb, but to the breaſts; and hence it is that women which give ſuck ſeldom have their courſes. How milk is generated, and made, the opinions of men are various; ſome think it to be made of the venal blood, but they are abſolutely deceived; ſome think it to be made only of arterial blood, and theſe err alſo from

the truth: others ſay, it is made of blood and chyle: but our opinion is, that it proceeds from, and is generated of, the chylous juice and a ſerous part of the arterial blood: for that the ſeroſity of the arterial blood (and not the ſubſtance of the blood itſelf) does help to generate and conſtitute the milk, we are induced to believe, not only from the foregoing reaſon, but becauſe no anaſtomoſes of the arteries with the lacteal pipes of the dugs could never yet be found out: and truly this opinion Bartholine ſeems to favour, where he ſaith, that all the blood which is poured out of the arteries into the breaſts is not turned into milk, but only the more ſerous or wheyiſh part thereof; the reſt (that which ſerves for nouriſhment excepted) running back again, by the veins, into the heart.

The *pleura*, or inner covering of the ribs, is a membrane white, thin, hard, and reſembling the peritonæum, but thicker and ſtronger. It ariſes from the tunicles which cover the intercoſtal nerves proceeding from the back-bone, by means of which it is continued with the coats of the brain: and therefore it is thicker in the back, to whoſe vertebræ it cleaves as it were inſeparably. It is every where double, that the veſſels may be carried within the foldings thereof: the inner part, looking towards the lungs and inwards, is thickeſt, ſmootheſt, and as it were bedewed with a wateriſh humour, that it ſhould not hurt the lungs by any roughneſs; the outer part is thinner and rougher, that it might cleave the more firmly to the ribs: between theſe the matter of the pleuriſy is many times collected, and not only between the pleura and muſcles. As to its figure, it is arched without, hollow within; above it is narrower, below broader, principally towards the ſides. From it ariſe ſome nervous fibres, by which the lungs are tied to it; if theſe be too ſtrait, the motion of the lungs is hindered, which cauſes an incurable difficulty of breathing. Its uſes are to cover the whole cavity of the thorax, and render it ſmooth, that the lungs might not be hurt; and to wrap in all the vital parts, and to defend them from all external injuries. The *mediaſtinum* is a membrane ſtanding in the middle of the breaſt, dividing the right ſide from the left. It ariſes from the pleura, being a double membrane. Its ſubſtance is membranous, yet ſofter than the pleura; its exterior part is rougher, becauſe of the fibres by which it is knit to the pleura: but its inner ſide, towards the lungs, is ſmooth; and about the veſſels it is commonly full of fat like the caul. The uſes of the mediaſtinum are, Firſt, to divide the thorax into two parts, that, the breaſt and lungs being hurt or wounded on one ſide, the other might be ſafe. Secondly, to hold up the pericardium firmly, wherein the heart is contained, that it ſhould not reſt upon the back-bone when we lie upon our back; neither fall upon the breaſt-bone when we bend ourſelves towards the ground; nor touch the ribs when we lie upon our ſides. Thirdly, to give a ſafe paſſage to the veſſels which run through it, as alſo

to

to ſuſtain the midriff, leſt it ſhould, by the weight of the bowels, be drawn too much downwards.

The *pericardium*, or *cyſtis* of the heart, is a membrane encompaſſing the whole heart, whoſe pyramidal figure it hath. It is ſo far diſtant from the heart as is ſufficient to give way for the motion of the ſame, and to contain the wateriſh humour. It has two membranes, one exterior from the mediaſtinum, tied before and behind to the *pleura*, and is fibrous: and one interior, from the external tunicles of the veſſels of the heart: for, within the pericardium, the veſſels want their common tunicle, it having been ſpent upon the pericardium. The original therefore of the pericardium is at the baſis from the tunicles which compaſs the veſſels of the heart, which proceed from the pleura. It is connected circularly to the mediaſtinum, and the neighbouring parts, with many fibres; but eſpecially to the nervous circle of the diaphragma, to which it cleaves ſo exceedingly faſt, that it cannot be ſeparated from it without rending, whereby the motion of the heart is directed. Within this pericardium (beſides the heart) is contained a ſerous or watery humour, tranſparently clear, and in ſome like water wherein fleſh has been waſhed: in taſte it is neither ſharp, ſalt, nor acid. It proceeds out of the veſſels of the heart, being a watery part of the blood; as lympha, and other juices, which go to their proper receptacles. The uſe of the juice is to cool and moiſten the heart, and to make it ſlippery, thereby to facilitate its motion: alſo, that the heart, by ſwimming therein, may be leſs ponderous, and not ſtrike againſt any part. Thoſe who have this humour conſumed, have their hearts dry: if it be in too great a quantity, it cauſes a palpitation of the heart, and ſuffocation, and death follows therefrom; if it be quite conſumed, a conſumption of the body happens.

The *heart* is a muſcular body, included in the pericardium, and ſituated nearly in the middle of the breaſt, between the lobes of the lungs; being the primary organ of the circulation of the blood, and conſequently of life. Its figure is nearly conic, the larger end being called its baſe, and the ſmaller end its apex. Its lower part is plane, and the upper part convex. Its ſituation is nearly tranſverſe or horizontal; ſo that its baſe is in the right, and its apex, with the greateſt parts of its bulk, is in the left ſide of the thorax: and conſequently it is there that the pulſation is felt. The plane ſurface of the heart lies on the diaphragm; the convex one is turned upwards. The heart is connected, 1ſt, By the intervention of the pericardium with the mediaſtinum, and with a large part of the middle of the diaphragm; this is contrived by nature, to prevent its being diſplaced, inverted, or turned too rudely about, in conſequence of the various motions of the body. 2. Its baſe is connected to its common veſſels: but its apex is free, and is received in a kind of cavity in the left lobe of the lungs. The length of the human heart is about ſix fingers' breadth; its breadth at the baſe is about five fingers; and its circumference about thirteen.

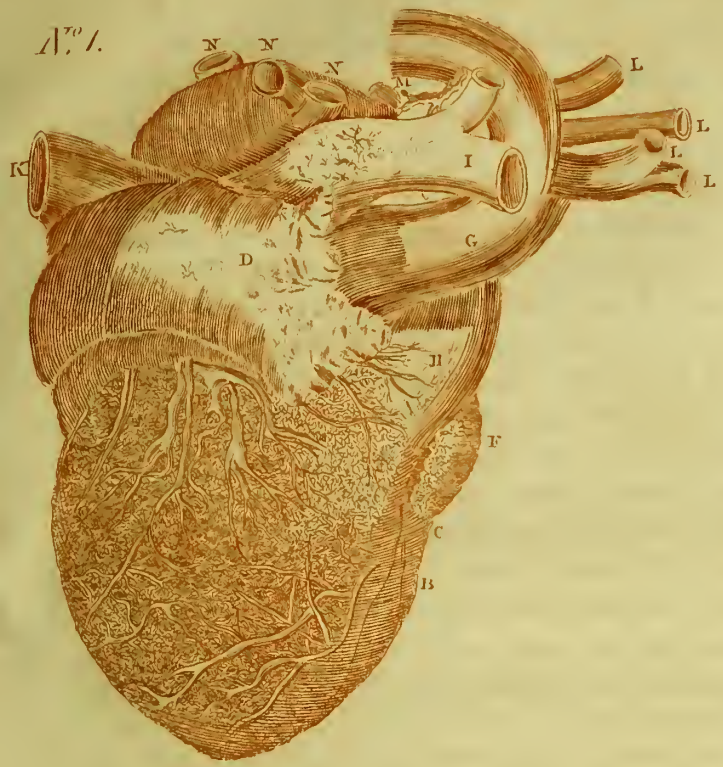
It

It is both externally and internally ſurrounded with a ſmooth membrane. There is a quantity of fat about it, which covers its baſe and its apex, and ſerves for lubricating it, and for facilitating its motion. Its blood-veſſels are of two kinds, common and proper; its common or peculiar veſſels being the coronary arteries and veins. The common veſſels of the heart are two veins, called the *vena cava* and the *vena pulmonalis;* and two arteries, the pulmonary one and the aorta. The nerves of the heart are ſmall, and ariſe from the par vagum and intercoſtals: the auricles are two. There are alſo two cavities in the heart, called its *ventricles:* of theſe the right is thinner and weaker in its circumference, but uſually much more capacious, than the left: it receives the blood from the vena cava and the right auricle, and delivers it into the pulmonary artery, to be carried to the lungs. The left ventricle is much ſtronger and thicker in its ſides, but is narrower and ſmaller than the right: it receives the blood from the pulmonary vein and the left auricle, and extrudes it very forcibly into the aorta. The right ventricle is in the anterior part of the thorax; ſo that they might be called the anterior and poſterior ventricles, much more properly than the right and left. There are in the ſides of both the ventricles of the heart, and of both its auricles, ſeveral *columnæ carneæ*, or *lacertuli*, with furrows between them, ſeeming ſo many ſmall and diſtinct muſcles; and, from the concourſe of the tendinous fibres of theſe in the heart, there are formed peculiar membranes ſituated at the orifices of the auricles of the heart: and there are alſo other columns of this kind, which run tranſverſely from one ſide of the ventricles to the other: theſe ſerve partly to aſſiſt the contraction of the heart in its ſyſtole, and partly to prevent its too great dilatation in its diaſtole. The *valvulæ* of the heart are of three kinds. 1. The *tricuſpidales;* theſe are three in number, and are ſituated at the ingreſs of the vena cava in the right ventricle. 2. The *mitrales;* theſe are two, and are ſituated in the left ventricle at the ingreſs of the pulmonary vein: theſe ſerve to hinder the ingreſs of the blood from the heart into the veins again while they are conſtricted. 3. The *ſemilunar* ones; theſe are three, and are ſituated at the origin of the aorta and pulmonary artery, and ſerve to prevent the reflux of the blood from them into the heart; theſe, for the ſake of ſtrength, are furniſhed with a number of fleſhy fibres and ſpheroidal corpuſcles. The orifices of the veins of Thebeſius and Verheyen, in the hollows of the heart, are for carrying back the blood from the ſubſtance of the heart to its cavities. The fibres of the heart are of a muſcular ſubſtance and of a moſt amazing fabric. They are of two kinds: 1. ſtraight ones in the left ventricle; and, 2. ſpiral ones, common to both ventricles, and of two orders. The exterior ones run to the left, from the baſe of the heart: the interior ones run to the right, and interſect the others; and, when they act, they cloſely conſtringe the cavities of the heart, and drive out the blood

from them. According to this fabric, the heart may be reſolved into two muſcles, each of which conſtitutes one of its ventricles. The uſe of the heart is for the circulation of the blood: it receives the blood from the veins, running from all the parts of the body; and propels it again, by its own motion, to all thoſe parts, through the arteries. On this depend life itſelf, the preſervation of the frame, and the motions and actions of all its parts. But, that the reader may have as diſtinct an idea as poſſible of this primary organ of life, we ſhall lay before him ſeveral views of it in the Plate annexed; where No. 1. repreſents the human heart ſeen in its convex part, and in its natural ſituation; B marks the branches of the coronary vein; C, the coronary artery; D, the right auricle; E, branches of veins going from the right auricle; G, the trunk of the aorta: H, the trunk of the pulmonary artery; I, the aſcending trunk of the vena cava, L L, &c. branches of the aorta, riſing upwards; M, one of the branches of the pulmonary artery; N N, &c. branches of the pulmonary vein. No. 2. repreſents the heart opened, to ſhow the ſtructure and form of its ventricles; where A expreſſes the muſcular ſeptum, or partition, which divides the ventricles; B, the right ventricle opening into the right auricle, and into the trunk of the pulmonary artery; C, the left ventricle, opening into the left auricle, and into the great trunk of the aorta. No. 3. and No. 4. repreſent the heart in different poſitions; where A marks the aſcending trunk of the vena cava; B, the trunk of the vena cava; and E, part of the right auricle, cut away, to ſhow the different arrangement of the internal fibres and venous ducts.

The *lungs*, or lights, are the inſtruments of breathing, and are the largeſt viſcus of the thorax: they are ſituated in the two ſides of it, with the heart, as it were, between them: and are connected, by means of the mediaſtinum, with the ſternum and vertebræ; with the heart, by means of the pulmonary veſſels, and immediately with the aſpera arteria. The colour of the lungs, in infants, is a fine florid red; in adults, it is darker; and in old people, livid, or variegated with black and white. When inflated, they have ſome reſemblance to the hoof of an ox; and are convex on the upper ſide, and concave underneath. They are divided into two large lobes, the right and left; the left, which is the ſmaller, is divided again into two; and the right, which is larger, into three ſmall ones. The membrane with which the lungs are ſurrounded is continuous with the pleura. The ſubſtance of the lungs is ſpongious, or veſiculous, and they ſeem, indeed, entirely compoſed of a number of ſmall veſicles of a fleſhy texture, and of a variety of veſſels. The veſſels of the lungs are the *bronchia*, the bronchial artery and vein, the nerves, and the lymphatics. The uſes of the lungs are, 1. To perform the office of reſpiration, by which the blood is attenuated in the plexus of the arteries, called the *rete vaſculoſum*. 2. To be aſſiſtant to the voice

No 1.



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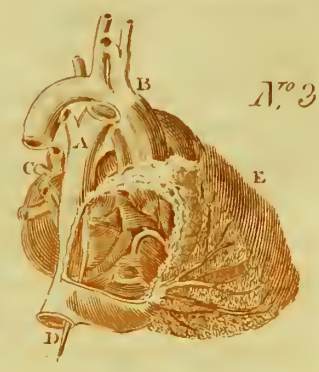

No 2.

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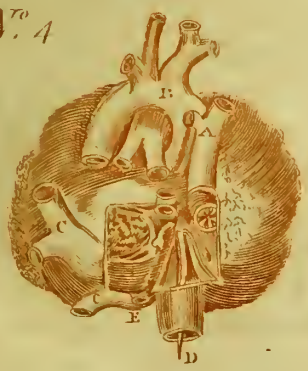

The Human Heart.

in ſpeaking, and to the ſenſe of ſmelling. They are alſo emunctories of the blood, and are of many other important ſervices. The principal diſeaſes to which the lungs are ſubject, are the aſthma, conſumption, peripneumony, &c.

Of the GENERATION and CIRCULATION of the BLOOD.

THE origin of the blood is in the chyle, which, paſſing the lacteals, is delivered into the ſubclavian; where, mixing with the blood, they proceed together to the right ventricle of the heart; and there, being yet more intimately mixed, they circulate together through the whole body: till, after ſeveral circulations, and ſecretions, at the ſeveral ſtrainers of the body, they are aſſimilated ſo as to make one uniform compound maſs, which appears to be nothing elſe but chyle altered by the artifice of nature, and exalted into blood; there being no appearance of any thing extraneous mixed with the liquor circulating in the blood-veſſels, but chyle; excepting what had been before ſeparated from it for ſome particular purpoſes, which being once ſerved, it is returned to it again: unleſs, perhaps, it may receive ſome portion of air in the lungs.

The blood, while in its veſſels, appears to the naked eye uniform and homogeneous; but, when let out and cold, it ſeparates ſpontaneouſly into two different parts, the one red and fibrous, which coheres into a maſs, and is called the *cruor;* the other thin and tranſparent, which retains fluidity when cold, and, being ſuppoſed ſpecifically heavier than the other, ſuſtains and bears it up, and is called the *ſerum.* If the red part of the blood bears too great a proportion to the ſerum, which is the caſe of athletic perſons, and others who do not take a ſufficient quantity of drink with their meat, the fault may be corrected by leſſening the meat, or by increaſing the drink. In the beginning of fevers, the proportion of the red part of the blood to the ſerum is greater, and at the end of them leſs, than it is in health. The change of this proportion is owing to perſons under this diſorder living wholly on drink and liquid nouriſhment; and bodies loaded with ſerous moiſture, being an argument of too ſmall a proportion of the red part of the blood to the ſerum, have been freed from their load by abſtaining wholly from drink. There are other cauſes beſides the bare quantities of meat and drink, which vary the proportion of the red part of the blood to the ſerum; for this proportion is greater in country-people than in citizens, in perſons who uſe exerciſe than in perſons who are inactive, and in perſons who live upon fleſh-meats and fermented liquors than in perſons who live upon vegetables and water. In ſhort, this proportion is increaſed by things which dry the body and ſtrengthen the fibres; and leſſened by things of a contrary nature. Too great a proportion of the red part of the blood to the ſerum renders bodies ſubject to inflammatory fevers on taking cold. The blood is found to conſiſt chiefly

of

of phlegm, as the baſis or vehicle; for from the beſt experiments it appears, that in ſeven ounces of human blood there are five ounces two drachms of phlegm, three drachms of a ſubtile ſpirituous oil, a ſmall quantity of a thicker oil, two drachms of ſalt, and about two of earth. From theſe conſtituent parts of the blood, variouſly combined and diſtributed by the circulatory motion impreſſed by the heart, and by the oſcillatory expanſive motion of the interſperſed air, and the re-action of the contractile veſſels, flow all the properties and operations of the blood. From this mixture of elements, and their lax compoſition, it becomes ſuſceptible of various alterations and impreſſions; the principal whereof are, the coagulation, which uſually attends it out of the body, ſometimes in it, and ſcarcely ever without an artificial procurement, but always mortal; and diſſolution, which is juſt oppoſite to the former, and conſiſts in ſuch a comminution of the fibrous parts of the blood as indiſpoſes it for the ſeparation of the cruor from the ſerum. This is frequently the conſequence of malignant and peſtilential fevers, &c. and is likewiſe occaſioned by ſome kinds of poiſons.

The circulation of the vital blood is performed through the arteries: and its courſe is from the heart towards the extremes of the body: and this from every part of the body, internal and external; ſtill out of a wider part into a narrower, out of the trunk into the branches. And it is on this principle alone, that all the blood may be derived into an artery, and evacuated at it. For it is evident that all the arteries of the body are continually bringing the blood from the left part of the heart, through the trunks of the arteries, into the branches; and on the contrary that all the veins, excepting the porta, are perpetually bringing back the blood from the extreme parts into the heart. The blood being arrived here, its motion or circulation is continued as follows: The auricles of the heart, being large hollow muſcles, are furniſhed with a double ſeries of ſtrong fibres proceeding with a contrary direction to two oppoſite tendons, the one adhering to the right ventricle, the other to the ſinus venoſus; as alſo with innumerable veins and arteries: by the contractile force of theſe auricles, the blood is vigorouſly expreſſed, and driven into the right ventricle; which, upon this contraction, is rendered flaccid, empty, and diſpoſed to admit it. If now the right ventricle, thus full of blood by the contraction of its fibres, preſſes the blood towards the aperture again, venous blood, at the ſame time pouring in, will drive it back again into the cavity, and mix it more intimately; till, riſing up againſt the parietes, it raiſes the valvulæ tricuſpides, which are ſo connected to the fleſhy columns extended on the oppoſite ſide, as that when laid quite down they cannot cloſe the parietes of the right ventricle; theſe it thruſts towards the right auricle, till being there joined they ſtop the paſſage very cloſely, and prevent any return. By the ſame means the ſame blood riſes up into the three ſemilunar valves,

placed

placed in the extremity of the other mouth, and lying open to the pulmonary artery: theſe it ſhuts cloſe againſt the ſides of the artery, and leaves a paſſage into the artery alone. The venous blood, therefore, that is, the blood of the whole body, continually moves out of the *ſinus*, or trunk of the *vena cava*, through the right auricle and right ventricle, into the pulmonary artery, in a continued and forcible ſtream. The blood carried by this artery into the lungs, and diſtributed by its branches through the whole ſubſtance thereof, is firſt admitted into the extremities of the pulmonary vein, called *arteria venoſa;* whence, paſſing into four large veſſels, which unite together, it is brought to the left *ſinus venoſus*, or trunk of the pulmonary vein; by the force of whoſe muſculous ſtructure it is driven into the left ventricle, which on this occaſion is relaxed, and by that means prepared to receive it. Hence, as before, it is driven into the left ventricle, which is relaxed by the ſame means; and the *valvulæ mitrales*, opening, admit it into the left ventricle, and hinder its reflux into the pulmonary vein. From hence it is forced into the aorta; at whoſe orifice there are three ſemilunar valves, which alſo prevent a reflux by cloſing the ſame. And thus is circulation effected; all the blood ſent into the lungs, and received in the *arteria venoſa*, *ſinus venoſus*, left auricle and ventricle, being here continually propelled into the *aorta*, whoſe ramifications are ſpread throughout all the reſt of the body, with a violent motion. Thus is all the blood, in its return from every part of the body, internal and external, and from every part of the heart and its auricles, impelled into the right ventricle; out of that into the lungs; thence into the left ventricle, and thence through the whole extent of the body; and thence again brought back to the heart.

In a *fœtus*, the apparatus for the circulation is ſomewhat different from that above deſcribed. The *ſeptum*, which ſeparates the two auricles of the heart, is pierced through with an aperture, called the *foramen ovale;* and the trunk of the pulmonary artery, a little after it has left the heart, ſends out a tube in the deſcending aorta, called the communicating canal. The blood in the lungs of the *fœtus* has none of the advantages of air or reſpiration; which yet being neceſſary, nature, it is ſuppoſed, takes care that it receives a portion of air, mixed together with its mother's blood, and tranſmitted to it by the umbilical veſſels, to be diffuſed through the body. This is confirmed hence; that, by conſtringing the navel-ſtring very tight, the child dies like a man ſtrangled; which appears to be owing to nothing but the want of air. Add to this, that, as ſoon as the mother ceaſes to reſpire, the fœtus expires.

As to the velocity of the circulating blood, and the time wherein the circulation is completed, ſeveral computations have been made. By Dr. Keill's account, the blood is driven out of the heart into the *aorta*, with a velocity which would carry

it fifty-two feet in a minute; but this velocity is continually abated in the progreſs of the blood through the numerous ſections, or branches, of the arteries: ſo that, before it arrives at the extremities of the body, its motion is infinitely diminiſhed. The ſpace of time wherein the whole maſs of blood may ordinarily circulate, is variouſly determined. Some of the lateſt writers ſtate it thus: ſuppoſing the heart to make two hundred pulſes in an hour, and that at every pulſe there is expelled an ounce of blood; as the whole maſs is not ordinarily computed to exceed twenty-four pounds, it muſt be circulated ſeven or eight times over in the ſpace of an hour. The *impetus*, occaſioning the circulation, is great enough in ſome animals to raiſe the blood ſix, ſeven, or eight, feet high from the orifice it ſpins out at; which, however, is far exceeded by that of the ſap of a vine in bleeding-time, which will ſometimes riſe upwards of forty feet high. The heat and motion of the blood are always greater, from a greater aetivity in the ſoul, in the day than in the night; and they are likewiſe ever greater from the food taken in the day-time: for the pulſe is always quicker after eating than before it; after a full meal than after a ſpare one; and after a meal of drier and ſtronger food, than after a meal of food that is moiſter and weaker.

Of the PULSES.

The *pulſe* is that reciprocal motion of the heart and arteries, whereby the warm blood, thrown out of the left ventricle of the heart, is ſo impelled into the arteries, and ſo diſtributed throughout the whole body, as to be perceived by the finger. It is certain, that life, health, and the due order of the whole body, depend upon a proper and equable circulation of the blood and humours through the ſolid parts; ſo that, the better regulated and the more equable the circulation is, the more perfectly nature preſerves herſelf, and cures the diſeaſes incident to her; and, on the contrary, the more this circulation recedes from a due and equable ſtate, the weaker nature is found to be, and the more ſubject to misfortunes and diſeaſes. Now every one muſt own, that the circulation of the blood cannot be better inveſtigated than by feeling the pulſe, not in a ſuperficial manner, but for a ſufficient time: for the pulſe not only diſcovers the imperfections and ſtrength of the whole body, but alſo the nature of the blood and the ſtate of the various ſecretions. And, as a pendulum of a clock, by its equable and regular vibrations, manifeſts the worth of the clock, ſo the pulſe diſcovers the habit of the patient, and the vigour or depravation of all the functions.

A moderate, conſtant, and equal, pulſe, is the rule and meaſure by which we are to judge of the reſt. A moderate pulſe is that which is large, but neither quick nor ſlow, hard nor unequal: this is the pulſe with which all others ought to be compared, and which denotes the beſt ſtate of health, the abſence of all preter-

natural and foreign things, and a due and temperate degree of heat: for, when ſuch a pulſe is preſent, the fluids are duly ſpirituous, the fibres poſſeſſed of their natural tone, the blood temperate and fluid, and conſequently the tranſpiration free, the nutrition good, the animal functions vigorous, the ſecretions duly carried on, and the patient in a ſtate of good health. But, when the pulſe is quicker, and conſequently more frequent than uſual, it indicates, a preternatural irritation of the heart, as the ancients expreſs it, unleſs it proceeds from external cauſes. But, if ſuch a pulſe continues long, it infallibly denotes a diſorder accompanied with an increaſe, and even a fever. It is generally produced by an inteſtine motion of the blood, and a change induced on the craſis of the ſpirits, by an admixture of heterogeneous and often cauſtic particles. When the pulſe is vehement, and at the ſame time quick, it indicates a feveriſh intemperature, an admixture of ſomething heterogeneous with the blood, lymph, and ſpirits; but at the ſame time a large quantity of health and ſpirits. If a vehement and quick pulſe is alſo large, the circulation of the blood is briſk, the heat and thirſt great, and the whole habit red and turgid. Where the pulſe is ſmall, and little blood is conveyed from the heart to the arteries, and from the veins to the heart, the circulation of the blood is faint and languid. Hence the tranſpiration and ſecretions are but ſmall, and the ſtrength little: but, if a ſmall pulſe is at the ſame time weak, frequent, and thick, it denotes a great languor of the ſtrength, a preternatural inteſtine motion, and a weak circulation of the blood; and, if this ſpecies of pulſe continues long, it indicates malignity and great danger.

A ſlow pulſe generally denotes a viſcidity, thickneſs, and weak circulation, of the blood, together with a languor of the ſecretions; but, if it is at the ſame time weak, it is dangerous, and raiſes a ſuſpicion of a total loſs of ſtrength. But a pulſe which is ſlow and large denotes ſufficient remains of ſtrength, tenſion, and thickneſs, of the fibres of the heart and arteries; and a viſcid and tenacious blood. All unequal pulſes are very bad, ſince they denote that there is neither a due influx of the ſpirits, nor a proper and equal mixture of the blood; but particularly ſuch pulſes always prognoſticate unlucky events, when they are weak. Intermittent pulſes are alſo of a bad kind, or generally accounted the preſages of death. But it is not univerſally ſo; for an intermittent pulſe frequently happens without danger, where, for inſtance, the ſymptoms are of a bad kind, and the patient's ſtrength ſtill entire. Hence this ſpecies of pulſe frequently happens in hypochondriac and melancholic patients, where the inteſtine motion of the blood is diminiſhed by its thickneſs. But, when the pulſe is weak and quick at the ſame time, it generally prognoſticates death. A hard pulſe generally indicates pains, ſpaſms, and convulſions, becauſe the fibres of the heart and arteries are ſpaſmodically conſtricted. The irregular, caprizating, and diſcontinued,

nued, pulſes, denote a very bad ſtate of the body, both with reſpect to the fluid and ſolid parts.

It is carefully to be obſerved, that one kind of pulſe is not found in all perſons; for the pulſe depends on the tone of the muſcular fibres, on the influx of the ſpirits, and the nature and temperament of the blood; and, as all theſe are ſurpriſingly various in human bodies, with reſpect to age, ſex, the ſeaſon of the year, the climate, the method of life, the ſleep, and the paſſions of the mind, ſo alſo the pulſes differ from each other according as theſe circumſtances differ. Thus men generally have a large and vehement pulſe, and women one of a more ſlow and weak kind; for the former have ſtronger fibres and a hotter blood than the latter. For this reaſon alſo, the circulation of the blood is briſker in men than in women; and the former do not generate ſuch loads of redundant blood and humours as women; who are generally weaker, and more ſubject to diſeaſes. Choleric perſons, and thoſe of ſanguineo-choleric conſtitutions, have a larger, quicker, and more vehement, pulſe, than phlegmatic and melancholic perſons, for which reaſon the fluids move more quickly, the excretions are made more expeditiouſly, and the blood is more fluid, in the former than in the latter; for the blood of the former is impregnated with a larger quantity of oleous and ſulphureous parts, which are the ſource and matrix of heat and ſpirituous quantity. Thus alſo, thoſe of a ſlender habit, who have ſtrong fibres and large veſſels, have a larger and ſtronger pulſe than thoſe who are fat, have lax fibres and narrow veſſels. Hence they are alſo ſounder, more robuſt, and more capable of enduring fatigue. This is alſo the reaſon why thoſe who are naturally thick and fat are more readily ſeized with ſickneſs, and deſtroyed by it, than thoſe of ſlender habits. In infants and children, the pulſe is frequent and ſoft; whereas, in old perſons it is ſlow and large; whilſt in young perſons, and thoſe full grown, it is large and vehement; for generally infants and children generate a larger quantity of humours (which are neceſſary to their growth,) and collect a great deal of ſordes, which is the reaſon why infants and children are more generally ſeized with ſickneſs, and more readily die of it, than youths and adults. Old perſons have thick blood, but rigid fibres: for which reaſon their pulſe is hard, and makes a forcible impreſſion on the touch; but in infants and children the pulſe is ſoft, on account of the tenderneſs and laxity of the fibres. The pulſe is alſo changed by the ſeaſon of the year, the exerciſe of the body, the aliments, and the affections of the mind. In the middle of the ſpring, the pulſe is large and vehement; at this ſeaſon alſo the ſtrength is greateſt; for which reaſon perſons are at that time moſt rarely ſick, and recover moſt eaſily: in the middle of the ſummer the pulſe is quicker and weaker, becauſe by the intenſe heat the ſtrength is impaired, while the inteſtine motion of the fluids is greater than it uſually is. In autumn the pulſe is ſlower, ſofter, and weaker, than

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at the middle of the ſummer. Exerciſe increaſes the pulſe, and conſequently the circulation of the blood, whilſt an idle and inactive ſtate renders the pulſe ſlow, weak, and languid, and diminiſhes the circulation of the fluids. Spirituous aliments render the pulſe large, vehement, and frequent. The pulſe of ſuch as are aſleep is ſlow, ſmall, and languid; but, as ſoon as they awake, it forthwith becomes large, quicker, and ſtronger; the pulſe of thoſe who are angry is large, vehement, and quick; that of ſuch as are frightened, frequent, ſmall, and inactive; and of thoſe who are ſorrowful, ſmall, languid, and ſlow; hence the common and ordinary affections of the body change the pulſe, ſo that, without duly adverting to theſe affections, the pulſe cannot be certainly underſtood, nor can it be determined how far it recedes from a natural ſtate in conſequence of diſeaſes.

The natural pulſe is therefore to be felt and to be obſerved, not immediately after exerciſe, bathing, immoderate eating, drinking wine, or other cauſes which exagitate the heart and ſpirits; for we are to determine nothing about the pulſe till the force of external cauſes has ceaſed, and all perturbations of the body are allayed; for the pulſe is the moſt certain ſign and criterion for judging of the motion of the heart and blood; but, if the pulſe alone is obſerved, without paying a due regard to other circumſtances, it may lay a foundation for forming a falſe judgment; ſince the pulſe may be diſturbed by a thouſand abſtract cauſes.

All authors, both ancient and modern, agree, that a frequent pulſe, in every ſpecies of fever, whether continual or intermittent, whether benign or malignant, whether in its beginning or at its height, proves ſuch a fever to be preſent; hence the quick or frequent pulſe is conſidered as the true eſſential ſign of fevers; but this frequency is either greater or leſs, and aſſociates itſelf with the great or vehement, or with the ſmall and weak, according to the diverſity of fevers, and the times of the diſeaſe. A frequent pulſe, when weak and ſmall, is ſcarcely ever good; ſince it denotes a languid and ſlow circulation of the blood; but a frequent, large, and vehement, pulſe, ſuch as is generally obſerved in the height of continual fevers, denotes a briſk circulation of the blood, and an increaſed heat of the body. In inveſtigating the cauſe of a frequent pulſe, which is generally preternatural, and accompanies ſeveral diſorders, we ſhall follow the accurate Bellini, who accounts for the motion of the heart from the influx of the blood through the coronary arteries, and of the nervous fluid through the nerves into the fibres of the heart; whence he concludes, that the muſcles of the heart are moſt frequently moved when the nervous fluid is moſt frequently conveyed into them, which happens when it is forced into them by a ſufficient quantity of blood flowing forcibly into the brain. Now by a frequent contraction of the heart a frequent pulſe is produced, which indicates that a

proper quantity of blood is conveyed to the brain, and that the brain is forcibly preſſed, which will happen, either when the blood ſtagnates therein, in conſequence of an obſtruction of its veins, or when the blood contained in theſe veins cannot flow in other parts, or in the lungs; or when the blood is thrown into a ſtate of effervescence, by which it aſſumes a tendency to move in every direction with a greater impetus, and by that means preſſes the brain more powerfully; the muſcles of the heart alſo move more frequently when irritated by any ſtimulus. If, therefore, the blood is too acrid or hot, ſo as to ſtimulate the ſinuſes of the heart, the heart will be more frequently contracted, and the frequency of the pulſe will indicate a ſtimulating quality in the blood.

Since from the pulſe we thus form a judgment, not only of the circulation and temperature of the blood, but alſo of the motion of the ſpirits, and the ſtrength of the patient, ſo the knowledge of the pulſe, and a due attention to it, become of ſingular ſervice, not only in inveſtigating the nature of diſorders, and forming a right judgment concerning them, but alſo in preſcribing medicines for their cure. But they muſt be carefully, not ſuperficially, conſulted. The phyſicians of China are far more careful in this reſpect than thoſe of Europe: for the Chineſe often ſpend a whole hour in feeling the pulſe, whilſt the Engliſh phyſicians have hardly patience to feel above two pulſations: a practice highly culpable, ſince, after ten ſtrokes of the artery, an inequality or intermiſſion often occurs, which happens when the unequally-mixed blood paſſes through the heart. The pulſe is alſo to be felt in both wriſts, in the neck, and in the temples; ſince it is certain from experience, that the pulſe in the wriſts frequently varies, and may be more commodiouſly felt in one than another. We ought alſo to advert to the pulſes of other parts; thus, ſometimes hypochondriac patients perceive a large pulſe under the ribs on the left ſide, which happens when a quick and viſcid blood, exagitated by heat, or any other cauſe, endeavours to procure a quick paſſage through the pancreas and ſpleen, but, ſtopping in their narrow veſſels, produces a pulſation, and a kind of pricking pain.

In continual and malignant fevers, a large internal pulſation in the veins of the head generally denotes a ſubſequent delirium; ſince it is a ſign that the blood there congeſted circulates ſlowly, till at laſt, becoming ſtagnant, it produces a violent inflammation of the meninges. If a large pulſe ariſes from an exceſſive ebullition of the blood, ſo that in fevers the veins of the temples beat, and the face is turgid without a ſoftneſs of the præcordia, there is reaſon to ſuſpect that the diſeaſe will be long, and that it will not terminate without a large hæmorrhage from the noſe, an hiccough, convulſions, or ſciatic pains. The reaſon of this is, that the redundant blood ſeeks for an outlet either by the noſe or the hæmorrhoidal veins; and, the ſooner this happens, the ſooner the patient is free from his diſorder.

When

When a pulſation is obſerved in any part of the body where at other times it is not felt, we may certainly conclude, that the part is inflamed and diſpoſed to a ſuppuration, eſpecially when it is accompanied with tumour and pain. A hard pulſe is almoſt an infallible ſign in the membranous parts; for this hardneſs of the pulſe, or exceſſive tenſion and vibration of the artery, indicates ſomething of a ſpaſmodic nature, ariſing from the conſent of the parts, and produced by the inflammation and pain. The pulſe of perſons labouring under diſorders of the breaſt, or a palpitation of the heart, is frequent, unequal, and languid: but ſuch a pulſe, unleſs when vehement, is accompanied with no preternatural heat, and happens becauſe the blood does not paſs through the ſinuſes of the heart and the lobes of the lungs. In weakneſs, and a diſpoſition to ſyncopes, the pulſe is generally ſmall, rare, and languid; but, if the pulſe is abſolutely imperceptible, the body covered with a cold ſweat, and the functions of the mind are not totally deſtroyed, I have obſerved, that the patient infallibly dies in ſix hours: and ſuch a ſituation I have ſeen produced by corroſive poiſon. It is to be obſerved that about the critical times in fevers, when nature endeavours to throw off the ſuperfluous and peccant matter by ſtool or ſweat, the pulſe, though languid, is yet more regular and leſs frequent, which is a certain ſign of recovery. But, if the pulſe is ſoft and undulating, it is a ſign that a ſalutary and critical ſweat is juſt coming on.

It is alſo to be obſerved, that the pulſe is changed by medicines. Thus, after draſtic purgatives, which procure too many ſtools, the pulſe is generally preternaturally quick. After venæſection, eſpecially in plethoric habits, the pulſe becomes quicker, a ſign that the circulation of the blood, in conſequence of its having a larger ſpace, is happily increaſed, ſince by this means a ſuppreſſion of the menſes or hæmorrhoids is generally removed. It is certain, not only from the authority of Sydenham, but alſo from experience, that, after the uſe of chalybeates, the pulſe is quicker, the face redder, and the heat greater. Strong ſudorifics, compoſed of volatile oleous ſubſtances, greatly increaſe the pulſation of the heart and arteries; on the contrary, anodynes, opiates, preparations of nitre, precipitating powders, acids, and ſuch things as diminiſh the inteſtinal motion of the blood and fix its ſulphur, render the pulſe calm and moderate in pains, inflammations, and febrile intemperature. Some very uſeful and important rules for the exhibition of medicines are drawn from the ſtate of the pulſe: thus purging and vomiting are contra-indicated by a too quick and vehement pulſe; for, when the blood is in a violent motion and ebullition, the ſecretions are generally very languid. If the ſtrength is defective, which may be known by the languid ſtate of the pulſe, emetics and purgatives diminiſh the ſtrength ſtill more; ſo that the phyſician ought to conſult the pulſe before he exhibits them; for, when the pulſe is ſtrong, and the motion of the blood regular, theſe artificial evacuations

evacuations are moſt beneficial, and ſucceed beſt. The ſame caution is neceſſary in the exhibition of ſudorifics and all analeptics, which convey heat and motion to the blood; for, if the pulſe is ſtrong and frequent, ſuch ſpirituous ſubſtances do more injury than good; they rarify the blood too much, and accelerate its inteſtine motion: by which means a delirium and other inflammations are frequently brought on. Great circumſpection and attention to the pulſe are alſo requiſite in the exhibition of narcotics or opiates; for, as theſe are poſſeſſed of a power of ſtopping the motion of the blood and ſpirits, and conſequently of impairing ſtrength, ſo they ought never to be exhibited when the pulſe is weak, languid, and ſmall, but are to be avoided like poiſon.

Of DISEASES in GENERAL, their PREVENTION and CURE.

DISEASE introduced the art of Medicine, which, in a primitive ſenſe, communicates the means of preſerving health when preſent, and of reſtoring it when loſt. If we look back into the origin of the medical art, we ſhall find its firſt foundation to be owing to accidental events, and natural inſtinct. In the early ages, the ſick were placed in croſs ways, and other public places, to receive the advice of ſuch paſſengers as knew a remedy ſuitable to their complaints; and, the better to preſerve the memory of every remarkable cure, both the diſeaſe and the remedy were engraved on pillars, that patients in the like caſes might reſort to them for inſtruction and relief. Hence an inſight into the virtues of herbs and plants, of metals and minerals, was originally acquired.

As to the part which reaſon has acted in the improvement of medicine, it ſeems to have conſiſted in obſerving: 1. That diſeaſes attended with particular circumſtances, called ſymptoms, were ſometimes cured without the aſſiſtance of art, by ſpontaneous evacuations, as hæmorrhages, diarrhœas, vomitings, or ſweats: whence bleeding, purges, and vomits, took their riſe. 2. That the patients were often relieved by the breaking-out of various tumours; whence aroſe the application of topical remedies. And, indeed, it is the beſt method of improving phyſic, to obſerve carefully what means nature, unaſſiſted by art, employs to free the conſtitution from diſtempers; ſince many important hints may be thence taken, for the relief of patients under the like circumſtances. He, who would advance the healing art, ought to collect a ſelect treaſure of practical obſervations, reſt ſatisfied with a few but well-choſen medicines, be thoroughly acquainted with their virtues and efficacy in different conſtitutions and diſeaſes, deſpiſe the cumberſome load of recipes with which practical writers of an inferior rank abound, reject the ſo-much extolled medicines of the chemiſts, and attempt the relief of patients by a proper diet and exerciſe, and ſuch me-

dicines as obſervation and ſound philoſophy recommend; for to the improvement of anatomy and natural philoſophy is much of the ſucceſs of phyſic to be attributed. The knowledge of medicines, or ſuitable remedies, is alſo highly neceſſary in thoſe, who, in order to moderate the impetus in acute diſorders, make evacuations, blunt acrimony, dilute too-thick fluids, condenſe thoſe that are too thin, brace up too-lax parts, and relax ſuch as are too much conſtricted; they alſo drive the humours to parts where they will be leaſt prejudicial, upon occaſion mitigate pain, and in languors uſe ſtimulating medicines. Wine, vinegar, barley, nitre, honey, rhubarb, opium, and other ſimples, are found both ſafe and powerful medicines. Sydenham tells us, that all manner of diſeaſes may be cured by bleeding, purging, with a ſubſequent opiate, and proper regimen. In chronical diſeaſes, mineral waters, ſalts, diaphoretics, ſoap, mercury, ſteel, with a few vegetables, and proper exerciſe, will generally effect the cure. In a word, what is there in the moſt elaborate preparation, that is worth half the pains taken about it? Mercury, opium, the Peruvian bark, and other ſimples, with fire and water, are acknowledged as the ſureſt remedies by the ableſt maſters of the art; and theſe are found to be more efficacious in that crude ſtate, in which bountiful nature has imparted them to us, than after the moſt operoſe and artificial preparations. We need deſpair of nothing, while we follow ſimplicity; but the event of intricate labour is fallacious.

Diſeaſes, in this and other countries, often flow from local circumſtances; whence they admit of great mitigation, and ſometimes of being entirely prevented, particularly if proper and timely means be taken for that purpoſe. Diſeaſed parents, unwholeſome food, confined air, and uncommonly wet, cold, damp, or hot, ſeaſons, are the forerunners of various diſorders; and, as theſe are generally foreſeen and known, it ſhould be the duty of every individual to guard againſt them.

Men are alſo expoſed to particular diſeaſes from the occupations which they follow; chemiſts, founders, glaſs-makers, and ſeveral other artiſts, are hurt by the unwholeſome air which they are obliged to breathe. This air is not only loaded with the noxious exhalations ariſing from metals and minerals, but is ſo charged with phlogiſton as to be rendered unfit for expanding the lungs ſufficiently, and anſwering the other important purpoſes of reſpiration. Hence proceed aſthmas, coughs, and conſumptions of the lungs, ſo incident to perſons who follow theſe employments. Such artiſts ought never to continue too long at work; and when they give over they ſhould ſuffer themſelves to cool gradually. They ought never to drink large quantities of cold, weak, or watery, liquors, while the body is hot, nor to indulge in any thing that is cold on the ſtomach.

Miners, and all who work under ground, are likewiſe hurt by unwholeſome air. The air, by its ſtagnation in the deep mines, not only loſes its proper ſpring and other

qualities neceſſary for reſpiration, but is often loaded with ſuch noxious exhalations as to become a moſt deadly poiſon. Miners are not only hurt by unwholeſome air, but likewiſe by the particles of metal which adhere to their ſkin, clothes, &c. Theſe are abſorbed, or taken up into the body, and occaſion palſies, vertigoes, and other nervous affections, which often prove fatal. Fallopius obſerves, that thoſe who work in mines of mercury ſeldom live above three or four years. Lead and ſeveral other metals are likewiſe very pernicious to the health.

All who work in mines or metals ought to waſh carefully, and to change their clothes as ſoon as they give over working. Nothing would tend more to preſerve the health of ſuch people than a ſtrict and almoſt religious regard to cleanlineſs. Plumbers, painters, gilders, ſmelters, makers of white lead, and many others who work in metals, are liable to the ſame diſeaſes as miners, and ought to obſerve the ſame directions for avoiding them. Tallow-chandlers, boilers of oil, and all who work in putrid animal ſubſtances, are likewiſe liable to ſuffer from the unwholeſome ſmells or effluvia of theſe bodies. They ought to pay the ſame regard to cleanlineſs as miners; and when they are troubled with naufea, ſickneſs, or indigeſtion, they ſhould take a gentle purge.

Thoſe who follow laborious employments are in general the moſt healthy of mankind; yet the nature of their occupations, and the places where they are carried on, expoſe them to ſome particular diſeaſes. Huſbandmen, for example, are expoſed to all the viciſſitudes of the weather, which, in this country, are often very great and ſudden, and occaſion colds, coughs, quinſies, rheumatiſms, fevers, and other acute diſorders. They are likewiſe forced to work hard, and often carry burdens above their ſtrength, which, by overſtraining the veſſels, occaſion aſthmas, ruptures, &c.

Such as bear heavy burdens, as porters, labourers, &c. are obliged to draw the air with much greater force, and alſo to keep their lungs diſtended with more violence, than is neceſſary for common reſpiration; by this means the tender veſſels of the lungs are overſtretched, and often burſt, inſomuch that a ſpitting of blood or fever enſues. Hippocrates mentions an inſtance to this purpoſe, of a man, who, upon a wager, carried an aſs; but was ſoon after ſeized with a fever, a vomiting of blood, and a rupture. Carrying heavy burdens is generally the effect of mere lazineſs, which prompts people to do at once what ſhould be done at twice. Sometimes it proceeds from vanity or emulation. Hence it is, that the ſtrongeſt men are moſt commonly hurt by heavy burdens, hard labour, or feats of activity. It is rare to find one who boaſts of his ſtrength without a rupture, a ſpitting of blood, or ſome diſeaſe, which he reaps as the fruit of his folly. When the muſcles are violently ſtrained, frequent reſt is neceſſary, in order that they may recover their tone; without this, the ſtrength and conſtitution will ſoon be worn out, and a premature old age brought on.

Labourers

Labourers in the hot ſeaſon are apt to lie down and ſleep in the ſun. This practice is ſo dangerous, that they often wake in a burning fever. Thoſe ardent fevers, which prove ſo fatal about the end of ſummer and beginning of autumn, are frequently occaſioned by this means. Fevers of a very bad kind are often occaſioned, among labourers, by poor living; when the body is not ſufficiently nouriſhed, the humours become vitiated, and the ſolids weak: from whence the moſt fatal conſequences enſue. Poor living is likewiſe productive of many of thoſe cutaneous diſeaſes ſo frequent among the lower claſs of people. It is remarkable that cattle, when pinched in their food, are generally affected with diſeaſes of the ſkin, which ſeldom fail to diſappear when they are put upon a good paſture. This ſhows how much a good ſtate of the humours depends upon a ſufficient quantity of proper nouriſhment. Poverty not only occaſions, but aggravates, many of the diſeaſes of the laborious, and makes them miſerable indeed. Here the godlike virtue of charity ought always to exert itſelf. To relieve the induſtrious poor in diſtreſs, is ſurely the moſt exalted act of religion and humanity. They alone who are witneſſes of thoſe ſcenes of calamity, can form a notion of what numbers periſh in diſeaſes, for want of proper aſſiſtance, and even for want of the neceſſaries of life.

Soldiers ſuffer many hardſhips from the inclemency of ſeaſons, long marches, bad proviſions, hunger, watching, unwholeſome climates, bad water, &c. Theſe occaſion fevers, fluxes, rheumatiſms, and other fatal diſeaſes, which generally do greater execution than the ſword, eſpecially when campaigns are continued too late in the year. A few weeks of cold rainy weather will often prove more fatal than an engagement. Sailors may alſo be numbered amongſt the laborious. They undergo great hardſhips from change of climate, the violence of the weather, hard labour, &c. One great ſource of the diſeaſes of ſea-faring people is exceſs. When they get on-ſhore, after having been long at ſea, without regard to the climate, or their own conſtitutions, they plunge headlong into all manner of riot, and even perſiſt till a fever puts an end to their lives. Thus intemperance, and not the climate, is often the cauſe why ſo many of our brave ſailors die on foreign coaſts. Such people ought not to live too low; but they would find moderation the beſt defence againſt fevers, and many other maladies. We have reaſon to believe, if due attention were paid to the diet, air, clothing, and, above all things, to the cleanlineſs, of ſea-faring people, they would be the moſt healthy ſet of men in the world; but, when theſe are neglected, the very reverſe will happen.

Nothing can be more contrary to the health and nature of man than a ſedentary life, yet this claſs comprehends the far greater part of the ſpecies. Almoſt the whole female world, and in manufacturing countries the major part of the males, may be reckoned ſedentary. But, though ſedentary employments are neceſſary,

yet there ſeems to be no reaſon why any perſon ſhould be confined for life to theſe alone. It is conſtant confinement that ruins the health. A man will not be hurt by ſitting five or ſix hours a-day; but, if he be obliged to ſit ten or twelve, in confined air, he will ſoon become injured in his health. Unwholeſome air is the cauſe of many diſorders. Few are aware of the danger ariſing from it. People generally pay ſome attention to what they eat and drink, but ſeldom regard what goes into the lungs, though the latter often proves more ſuddenly fatal than the former. A ſedentary life ſeldom fails to occaſion an univerſal relaxation of the ſolids. This is the great ſource from whence moſt of the diſeaſes of ſedentary people flow. The ſcrophula, conſumption, hyſterics, and nervous diſeaſes, now ſo common, were very little known in this country before ſedentary artificers became ſo numerous: and they are very little known ſtill among ſuch of our people as follow active employments without doors, though in great towns at leaſt two-thirds of the inhabitants are afflicted with them. Inſtead of multiplying rules for preſerving the health of the ſedentary, we ſhall recommend to them the following plan, viz. That every perſon who follows a ſedentary employment ſhould cultivate a piece of ground with his own hand. This he might dig, plant, ſow, and weed, at leiſure-hours, ſo as to make it an exerciſe and amuſement, while it produced many of the neceſſaries of life. After working an hour in a garden, a man will return with more keenneſs to his employment within doors, than if he had been all the while idle. Labouring the ground is every way conducive to health. It not only gives exerciſe to every part of the body, but the very ſmell of the earth and freſh herbs revives and cheers the ſpirits, whilſt the perpetual proſpect of ſomething coming to maturity delights and entertains the mind. We are ſo formed as to be always pleaſed with ſomewhat in proſpect, however diſtant or however trivial. Hence the happineſs that men feel in planting, ſowing, building, &c. Theſe ſeem to have been the chief employments of the more early ages: and, when kings and conquerors cultivated the ground, there is reaſon to believe, that they knew as well wherein true happineſs conſiſted as we do. In a word, exerciſe without doors, in one ſhape or another, is abſolutely neceſſary to health. Thoſe who neglect it, though they may drag out life, can hardly be ſaid to enjoy it. Weak and effeminate, they languiſh for a few years, and ſoon drop into an untimely grave.

Every diſeaſe may be conſidered as an aſſemblage of ſymptoms, and muſt be diſtinguiſhed by thoſe that are moſt obvious and permanent; for, by a due attention to them, the inveſtigation of diſeaſes in general will be found a much leſs difficult matter than people are ready to imagine. A proper attention to the patient's age, ſex, temper of mind, conſtitution, and manner of life, will likewiſe greatly aſſiſt, both in the inveſtigation and treatment of diſeaſes. In childhood the fibres are lax

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and ſoft, the nerves extremely irritable, and the fluids thin; whereas in old age the fibres are rigid, the nerves become almoſt inſenſible, and many of the veſſels imperviable. Theſe and other peculiarities render the diſeaſes of the young and aged very different, and of courſe they muſt require a different method of treatment. Females are liable to many diſeaſes which do not afflict the other ſex: beſides, the nervous ſyſtem being more irritable in them than in men, their diſeaſes require to be treated with greater caution. They are leſs able to bear large evacuations; and all ſtimulating medicines ought to be adminiſtered to them with a ſparing hand. The temper of mind ought to be carefully attended to in all diſeaſes. Fear, anxiety, and a fretful temper, both occaſion and aggravate diſeaſes. In vain do we apply medicines to the body to remove maladies which proceed from the mind. When that is affected, the beſt medicine is to ſoothe the paſſions, to divert the mind from anxious thought, and to keep the patient as eaſy and cheerful as poſſible. Few things are of greater importance, in the cure of diſeaſes, than cleanlineſs. When a patient is ſuffered to lie in dirty clothes, whatever perſpires from his body is again reſorbed, or taken up into it, which ſerves to nouriſh the diſeaſe, and increaſe the danger. Many diſeaſes may be cured by cleanlineſs alone; moſt of them may be mitigated by it; and in all of them it is highly neceſſary, both for the patient and thoſe who attend him.

Of FEVERS.

FEVERS are not only the moſt frequent of all diſeaſes, but they are likewiſe the moſt complex; in the moſt ſimple ſpecies of fever there is always a combination of ſeveral different ſymptoms. The diſtinguiſhing ſymptoms of fever are, increaſed heat, frequency of pulſe, loſs of appetite, general debility, pain in the head, and a difficulty in performing ſome of the vital and animal functions. The other ſymptoms uſually attendant on fevers are, naufea, thirſt, anxiety, delirium, wearineſs, waſting of the fleſh, want of ſleep, or the ſleep diſturbed and not refreſhing. As a fever is only an effort of Nature to free herſelf from an offending cauſe, it is the buſineſs of thoſe who have the care of the ſick, to obſerve with diligence which way Nature points, and to endeavour to aſſiſt her operations. Our bodies are ſo framed, as to have a conſtant tendency to expel or throw off whatever is injurious to health. This is generally done by urine, ſweat, ſtool, expectoration, vomit, or ſome other evacuation. There is reaſon to believe, if the efforts of nature, at the beginning of a fever, were duly attended to and promoted, it would ſeldom continue long; but, when her attempts are either neglected or counteracted, it is no wonder if the diſeaſe proves fatal. There are daily inſtances of perſons, who, after catching cold, have all the ſymptoms of a beginning fever; but, by keeping warm, drinking diluting liquors, bathing the feet in warm water, &c. the ſymptoms in a few hours diſappear, and the

danger is prevented. When fevers of a putrid kind threaten, the beſt method of obviating their effects is repeated vomits. Almoſt every perſon in a fever complains of great thirſt, and calls out for drink, eſpecially of a cooling nature. This at once points out the uſe of water and other cooling liquors. What is ſo likely to abate the heat, attenuate the humours, remove ſpaſms and obſtructions, promote perſpiration, increaſe the quantity of urine, and, in ſhort, produce every ſalutary effect in an ardent or inflammatory fever, as drinking plentifully of water, thin gruel, or any other weak liquor of which water is the baſis? The neceſſity of diluting liquors is pointed out by the dry tongue, the parched ſkin, and the burning heat, as well as by the unquenchable thirſt, of the patient. Many cooling liquors which are extremely grateful to patients in a fever, may be prepared from fruits, as decoctions of tamarinds, apple-tea, orange-whey, and the like. Mucilaginous liquors might alſo be prepared from marſhmallow-roots, linſeed, lime-tree buds, and other mild vegetables particularly pointed out in the Herbal. Theſe liquors, eſpecially when acidulated, are highly agreeable to the patient, and ſhould never be denied him. In fevers, the mind as well as body ſhould be kept eaſy. Company is ſeldom agreeable to one that is ſick. Indeed every thing that diſturbs the imagination increaſes the diſeaſe; for which reaſon every perſon in a fever ought to be kept perfectly quiet, and neither allowed to ſee nor hear any thing that may in the leaſt affect or diſcompoſe his mind. What food the patient takes ſhould be in ſmall quantity, light, and of eaſy digeſtion. It ought to be chiefly of the vegetable kind, as panada, roaſted apples, gruels, and ſuch-like. The freſh air ſhould likewiſe be taken as much as poſſible; it not only removes the anxiety, but cools the blood, revives the ſpirits, and proves every way beneficial. Among common people, the very name of a fever generally ſuggeſts the neceſſity of bleeding. This notion ſeems to have taken its riſe from moſt fevers in this country having been formerly of an inflammatory nature; but true inflammatory fevers are now ſeldom to be met with. Sedentary occupations, and a different manner of living, have ſo changed the ſtate of diſeaſes in Britain, that there is now hardly one fever in ten where the lancet is neceſſary. In moſt low, nervous, and putrid, fevers, which are now ſo common, bleeding is really hurtful, as it weakens the patient, ſinks his ſpirits, &c. We would recommend this general rule, never to bleed at the beginning of a fever, unleſs there be evident ſigns of inflammation. Bleeding is an excellent remedy when neceſſary, but ſhould never be wantonly performed. It is likewiſe a common notion, that ſweating is always neceſſary in the beginning of a fever. When the fever proceeds from an obſtructed perſpiration, this notion is not ill-founded. If the patient only lies in bed, bathes his feet and legs in warm water, and drinks freely of water-gruel, or any other weak diluting liquor, he will ſeldom fail to perſpire freely.

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The warmth of the bed, and the diluting drink, will relax the univerſal ſpaſm, which generally affects the ſkin at the beginning of a fever; it will open the pores, and promote the perſpiration, by means of which the fever may often be carried off. But inſtead of this, the common practice is to heap clothes upon the patient, and to give him things of a hot nature, as ſpirits, ſpiceries, &c. which fire his blood, increaſe the ſpaſms, and render the diſeaſe more dangerous. In all fevers a proper attention ſhould be paid to a patient's longings. Theſe are the calls of Nature, and often point out what may be of real uſe. Patients are not indeed to be indulged in every thing that the ſickly appetite may crave; but it is generally right to let them have a little of what they eagerly deſire, though it may not ſeem altogether proper. What the patient longs for, his ſtomach will generally digeſt; and ſuch things have ſometimes a very happy effect.

Of INTERMITTENT FEVERS, or AGUES.

THE ſeveral kinds of intermittent fevers, or agues, take their names from the period in which the fit returns, as quotidian, tertian, quartan, &c. They are generally occaſioned by effluvia from putrid ſtagnated water. This is evident from their abounding in rainy ſeaſons, and being moſt frequent in countries where the ſoil is marſhy, as in Holland, the Fens of Cambridgſhire and Huntingdonſhire, the Hundreds of Eſſex, &c. This diſeaſe may alſo be occaſioned by eating too much ſtone-fruit, by a poor watery diet, damp houſes, evening dews, lying upon the damp ground, watching, fatigue, depreſſing paſſions, and the like. When the inhabitants of a high country retire to a low one, they are apt to prove fatal. In a word, whatever relaxes the ſolids, diminiſhes the perſpiration, or obſtructs the circulation in the capillary or ſmall veſſels, diſpoſes the body to agues.

CURE.—As the chief intentions of cure in an ague are to brace the ſolids, and promote perſpiration, the patient ought to take as much exerciſe between the fits as he can bear. If he be able to go abroad, riding on horſeback, or in a carriage, will be of great ſervice. But, if he cannot bear that kind of exerciſe, he ought to take ſuch as his ſtrength will permit. Nothing tends more to prolong an intermitting fever, than indulging a lazy indolent diſpoſition. In this diſeaſe, the ſtomach is generally loaded with cold viſcid phlegm, and frequently great quantities of bile are diſcharged by vomit; which plainly points out the neceſſity of ſuch evacuations. Vomits are therefore to be adminiſtered before the patient takes any other medicine. But, if the patient be afraid to take a vomit, he ought to cleanſe the bowels by a doſe or two of Glauber's ſalt, jalap, or rhubarb: after this, two ounces of the beſt Peruvian bark, finely powdered, may be divided into twenty-four doſes. Theſe may either be made into boluſſes, as they are uſed, with a little ſyrup of lemon, or mixed in a glaſs of red

wine, a cup of camomile-tea, water-gruel, or any other drink that is more agreeable to the patient. In an ague which returns every day, one of the above doſes may be taken every two hours during the interval of the fits. In a tertian, or third-day ague, it will be ſufficient to take a doſe every third hour during the interval; and in a quartan, every fourth. If the patient cannot take ſo large a doſe of the bark, he may divide each of the powders into two parts, and take one every hour, &c. For a young perſon, a ſmaller quantity of this medicine will be ſufficient, and the doſe muſt be adapted to the age, conſtitution, and violence of the ſymptoms. The above quantity of bark will frequently cure an ague; the patient, however, ought not to leave off taking the medicine as ſoon as the paroxyſms are ſtopped, but ſhould continue to uſe it till there is reaſon to believe the diſeaſe is entirely overcome. Moſt of the failures in the cure of this diſeaſe are owing to patients not continuing to uſe the medicine long enough. They are generally directed to take it till the fits are ſtopped, then to leave it off, and begin again at ſome diſtance of time; by which means the diſeaſe gathers ſtrength, and often returns with as much violence as before. A relapſe may always be prevented, and the cure greatly facilitated, by uſing the following infuſion for ſome conſiderable time as a drink: Take an ounce of gentian-root; of calamus aromaticus, and orange-peel, each half an ounce; with three or four handfuls of camomile-flowers, and a handful of coriander-ſeed, all bruiſed together in a mortar: put half a handful of theſe ingredients into a tea-pot, and pour thereon a pint of boiling water. A large tea-cup full of this infuſion ſhould be drunk three or four times a-day; by which means a ſmaller quantity of bark than is generally uſed will be ſufficient to cure an ague. There is no doubt but many of our own plants or barks, which are very bitter and aſtringent, would ſucceed in the cure of intermittent fevers, eſpecially when aſſiſted by aromatics; and it is only by the uſe of ſundry of thoſe herbs recommended in the Herbal as antidotes againſt agues, that many old women in country places ſo effectually cure the ague, after it has baffled every exertion of the doctor. In obſtinate agues, when the patient is old, the habit phlegmatic, the ſeaſon rainy, the ſituation damp, or the like, it will be neceſſary to add to the above two ounces of the bark, half an ounce of Virginian ſnake-root, and a quarter of an ounce of ginger, or ſome other warm aromatic; or, if the ſymptoms be of an inflammatory nature, half an ounce of ſalt of wormwood or ſalt of tartar may be added to the above quantity of bark. As autumnal and winter agues generally prove much more obſtinate than thoſe which attack the patient in ſpring or ſummer, it will be neceſſary to continue the uſe of the foregoing medicines longer in the former than in the latter. If agues are not properly cured, they often degenerate into obſtinate chronical diſeaſes, as the dropſy, jaundice, &c. For this reaſon all poſſible care

ſhould

ſhould be taken to have them radically cured, before the humours be vitiated, and the conſtitution ſpoiled. To prevent agues, people ſhould endeavour to avoid their cauſes. The following preventive medicine may however be of uſe to ſuch as are obliged to live in low marſhy countries, or who are liable to frequent attacks of this diſeaſe:—Take an ounce of the beſt Peruvian bark; Virginian ſnake-root, and orange-peel, of each half an ounce: bruiſe them all together, and infuſe for five or ſix days in a bottle of brandy, Holland gin, or wine; afterwards pour off the clear liquor, and take a wine-glaſs of it twice or thrice a-day. Thoſe who can bring themſelves to chew the bark will find that method ſucceed very well. Gentian-root, or calamus-aromaticus, may alſo be chewed by turns for the ſame purpoſe. All bitter herbs are antidotes to agues, eſpecially thoſe that are warm and aſtringent.

Of an ACUTE CONTINUAL FEVER.

THIS fever is denominated acute, ardent, or inflammatory. It moſt commonly attacks the young, or perſons about the prime or vigour of life, eſpecially ſuch as live high, abound with blood, and whoſe fibres are ſtrong and elaſtic. It ſeizes people at all ſeaſons of the year; but is moſt frequent in the ſpring and beginning of ſummer. It may be occaſioned by any thing that overheats the body, or produces plethora; as violent exerciſe, ſleeping in the ſun, drinking ſtrong liquors, eating ſpiceries, a full diet, with little exerciſe, &c. It may likewiſe be occaſioned by whatever obſtructs the perſpiration; as lying on the damp ground, drinking cold liquor when the body is hot, night-watching, or the like.

CURE.—As this diſeaſe is always attended with danger, the beſt medical aſſiſtance ought to be procured as ſoon as poſſible; and ſuch medicines ſhould be uſed as are calculated to dilute the blood, correct the acrimony of the humours, allay the exceſſive heat, remove the ſpaſmodic ſtricture of the veſſels, and promote the ſecretions. For this purpoſe let the patient drink plentifully of diluting liquors; as water-gruel, or oatmeal-tea, clear whey, barley-water, baum-tea, or apple-tea; which may be ſharpened with juice of orange, jelly of currants, raſpberries, and ſuch like. If the patient be coſtive, an ounce of tamarinds, with two ounces of ſtoned raiſins of the ſun, and a couple of figs, may be boiled in three Engliſh pints of water to a quart. This makes a very pleaſant drink, and may be uſed at diſcretion. The patient's diet muſt be very ſpare and light; and it will afford him great relief, eſpecially in a hot ſeaſon, to have freſh air frequently let into his chamber. This, however, muſt be done in ſuch a manner as not to endanger his catching cold. It is too common in fevers to load the patient with bed-clothes, under the pretence of making him ſweat, or defending him from the cold. This cuſtom has many ill effects. It

increaſes the heat of the body, fatigues the patient, and retards inſtead of promoting the perſpiration. In this and all other fevers, attended with a hard, full, quick, pulſe, bleeding is of the greateſt importance. This operation ought always to be performed as ſoon as the ſymptoms of an inflammatory fever appear. The quantity of blood to be taken away muſt be in proportion to the ſtrength of the patient and the violence of the diſeaſe. If after the firſt bleeding the fever ſhould riſe, and the pulſe become more frequent and hard, there will be a neceſſity for repeating it a ſecond, and perhaps a third, or even a fourth, time, which may be done at the diſtance of twelve, eighteen, or twenty-four, hours from each other, as the ſymptoms require. If the pulſe continues ſoft, and the patient is tolerably eaſy after the firſt bleeding, it ought not to be repeated. If the heat and fever be very great, forty or fifty drops of the dulcified or ſweet ſpirit of nitre may be made into a draught, with an ounce of roſe-water, two ounces of common water, and half an ounce of ſimple ſyrup, or a bit of loaf-ſugar. This draught may be given to the patient every three or four hours, while the fever is violent; afterwards, once in five or ſix hours will be ſufficient. If about the tenth, eleventh, or twelfth, day, the pulſe becomes more ſoft, the tongue moiſter, and the urine begins to let fall a reddiſh ſettlement, there is reaſon to expect a favourable iſſue to the diſeaſe. But if, inſtead of theſe ſymptoms, the patient's ſpirits grow languid, the pulſe ſinks, and his breathing becomes difficult, with a ſtupor, trembling of the nerves, ſtarting of the tendons, &c. there is reaſon to fear that the conſequences will be fatal. In this caſe bliſters muſt be applied to the head, ancles, inſide of the legs or thighs, as there may be occaſion; poultices of wheat-bread, muſtard, and vinegar, may likewiſe be applied to the ſoles of the feet, and the patient muſt be ſupported with cordials, as ſtrong white-wine whey, negus, ſago-gruel with wine in it, and ſuch like. Should the patient recover, he ought to take ſome gentle laxative. An ounce of tamarinds and a drachm of ſena may be boiled for a few minutes in a pint of water, and an ounce of manna diſſolved in the decoction: afterwards it may be ſtrained, and a tea-cup full drunk every hour till it operates. This doſe may be repeated twice or thrice, five or ſix days intervening betwixt each, and the patient ſhould be kept eaſy till his ſtrength and ſpirits are ſufficiently recruited.

Of the PLEURISY.

THE pleuriſy is an inflammation of that membrane called the *pleura*, which lines the inſide of the breaſt. It may be occaſioned by whatever obſtructs the perſpiration: as cold northerly winds; drinking cold liquors when the body is hot; ſleeping without doors on the damp ground; wet clothes, plunging the body into cold water, or expoſing it to the cold air, when covered with ſweat, &c. It

may

may likewiſe be occaſioned by drinking ſtrong liquors; by the ſtoppage of uſeful evacuations; as old ulcers, iſſues, ſweating of the feet or hands, &c. the ſudden ſtriking-in of any eruption, as the itch, the meaſles, or the ſmall-pox. A pleuriſy may likewiſe be occaſioned by violent exerciſe, as running, wreſtling, leaping, or by ſupporting great weights, blows on the breaſt, &c. The pulſe in this diſeaſe is commonly quick and hard, the urine high-coloured; and, if blood be let, it is covered with a tough cruſt, or buffy coat. The patient's ſpittle is at firſt thin; afterwards it becomes groſſer, and is often ſtreaked with blood.

CURE.—Nature generally endeavours to carry off this diſeaſe by a critical diſcharge of blood from ſome part of the body, by expectoration, ſweat, looſe ſtools, thick urine, or the like. We ought therefore to ſecond her intentions, by leſſening the force of the circulation, relaxing the veſſels, diluting the humours, and promoting expectoration. Copious bleeding, in the beginning of a pleuriſy, has a much better effect than repeated ſmall bleedings. A man may loſe twelve or fourteen ounces of blood as ſoon as it is certainly known that he is ſeized with a pleuriſy. For a younger perſon, or one of a delicate conſtitution, the quantity muſt be leſs. If, after the firſt bleeding, the ſtitch, with the other violent ſymptoms, ſhould continue, it will be neceſſary, at the diſtance of twelve or eighteen hours, to let eight or nine ounces more. If the ſymptoms do not then abate, and the blood ſhows a ſtrong buffy coat, a third, or even a fourth, bleeding may be requiſite. But this operation is ſeldom neceſſary after the third or fourth day of the fever, and ought not then to be performed, unleſs in the moſt urgent circumſtances. The blood may be attenuated without bleeding: and the pain of the ſide abated by fomenting, bliſtering, &c. Fomentations may be made by boiling a handful of the flowers of elder, camomile, and common mallows, or any other ſoft vegetables, recommended for this complaint in the Herbal. The herbs may either be put into a flannel bag, and applied warm to the ſide, or flannels may be dipped in the decoction, afterwards rung out, and applied to the part affected, with as much warmth as the patient can eaſily bear. Fomentations not only eaſe the pain, but relax the veſſels, and prevent the ſtagnation of the blood and other humours. Leaves of various plants might likewiſe be applied to the patient's ſide with advantage. I have often ſeen great benefit from young cabbage-leaves applied warm to the ſide in a pleuriſy. Theſe not only relax the parts, but likewiſe draw off a little moiſture, and may prevent the neceſſity of bliſtering-plaſters; which, however, when other things fail, muſt be applied. What is called the criſis, or height of the fever, is ſometimes attended with very alarming ſymptoms, as difficulty of breathing, an irregular pulſe, convulſive motions, &c. Theſe are apt to frighten the attendants, and induce them to do improper things, as bleeding the patient, giving him ſtrong ſtimulating medicines,

medicines, or the like. But they are only the ſtruggles of Nature to overcome the diſeaſe, in which ſhe ought to be aſſiſted by plenty of diluting drink, which is then peculiarly neceſſary. If the patient's ſtrength however be much exhauſted by the diſeaſe, it will be neceſſary at this time to ſupport him with ſmall draughts of white-wine whey, negus, or the like. When the pain and fever are gone, it will be proper, after the patient has recovered ſufficient ſtrength, to give him ſome gentle purges. He ought likewiſe to uſe a light diet of eaſy digeſtion, and his drink ſhould be of a cleanſing nature.

The *paraphrenitis*, or inflammation of the diaphragm, is ſo nearly connected with the pleuriſy, and reſembles it ſo much in the manner of treatment, that it is ſcarcely neceſſary to conſider it as a ſeparate diſeaſe. It is attended with a very acute fever, and an extreme pain of the part affected, which is generally augmented by coughing, ſneezing, drawing in the breath, taking food, going to ſtool, making water, &c. Hence the patient breathes quick, and draws in his bowels to prevent the motion of the diaphragm; is reſtleſs, anxious, has a dry cough, a hiccup, and often a delirium. Every method ſhould be taken to prevent a ſuppuration, as it is impoſſible to ſave the patient's life when this happens. The regimen and medicine are in all reſpects the ſame as in a pleuriſy. We ſhall only add, that in this diſeaſe emollient clyſters are peculiarly uſeful, as they relax the bowels, and by that means make a derivation from the part affected.

Of INFLAMMATION of the LUNGS.

THIS diſeaſe is generally fatal to thoſe who have a flat breaſt, or narrow cheſt, and to ſuch as are afflicted with an aſthma, eſpecially in the decline of life. Sometimes the inflammation reaches to one lobe of the lungs only, at other times the whole organ is affected; in which caſe the diſeaſe can hardly fail to prove fatal. An inflammation of the lungs is ſometimes a primary diſeaſe, and ſometimes it is in conſequence of other diſeaſes, as a quinſey, a pleuriſy, &c. Moſt of the ſymptoms of a pleuriſy likewiſe attend an inflammation of the lungs; only in the latter the pulſe is more ſoft, and the pain leſs acute; but the difficulty of breathing, and oppreſſion of the breaſt, are generally greater.

CURE.—Bleeding and purging are generally proper at the beginning of this diſeaſe; but, if the patient's ſpittle is pretty thick, as well as concocted, neither of them are neceſſary. It will be ſufficient to aſſiſt the expectoration by ſome of the ſharp medicines recommended for that purpoſe in the pleuriſy; bliſters ought to be applied pretty early. If the patient does not ſpit, he muſt be bled according as his ſtrength will permit, and have a gentle purge adminiſtered. Afterwards his body may be kept open by clyſters, and the expectoration promoted by taking every four hours two-table ſpoonfuls of the ſolution of gum ammoniac, with oxymel of

ſquills, &c. When an inflammation of the breaſt does not yield to bleeding, bliſtering, and other evacuations, it commonly ends in a ſuppuration, which is more or leſs dangerous according to the part where it is ſituated. When this happens in the pleura, it ſometimes breaks outwardly, and the matter is diſcharged from the wound. If the ſuppuration happens within the ſubſtance or body of the lungs, the matter may be diſcharged by expectoration; but, if the matter floats in the cavity of the breaſt, between the pleura and the lungs, it can only be diſcharged by an inciſion made between the ribs. If the patient's ſtrength does not return after the inflammation is to all appearance removed; if his pulſe continues quick though ſoft, his breathing difficult and oppreſſed; if he has cold ſhiverings at times, his cheeks flushed, his lips dry; and if he complains of thirſt, and want of appetite; there is reaſon to fear a ſuppuration, and that a conſumption of the lungs will enſue; the proper treatment of which we ſhall next conſider.

Of CONSUMPTIONS.

CONSUMPTIONS prevail more in England than in any other part of the world; owing perhaps to the great uſe of animal food and malt-liquors, the general application to ſedentary employments, and the great quantity of pit-coal which is burnt; to which we may add the perpetual changes in the atmoſphere, or variableneſs of the weather. As this diſeaſe ſo frequently proves fatal, we ſhall point out its cauſes, in order that people may as much as poſſible endeavour to guard againſt it: theſe are, confined or unwholeſome air; violent paſſions, exertions, or affections of the mind; grief, diſappointment, anxiety, or cloſe application to ſtudy:—great evacuations; as ſweatings, diarrhœas, diabetes, exceſſive venery, the fluor albus, an over-diſcharge of the menſtrual flux, giving ſuck too long:—alſo the ſudden ſtoppage of cuſtomary evacuations; as the bleeding piles, ſweating of the feet, bleeding at the noſe, the menſes, iſſues, ulcers, or eruptions of any kind. Conſumptions are likewiſe caught by ſleeping with the diſeaſed; for which reaſon this ſhould be carefully avoided: but more conſumptive patients date the beginning of their diſorders from wet feet, damp beds, night air, wet clothes, or catching cold after the body has been heated, than from all other cauſes put together. This diſeaſe however is ſometimes owing to an hereditary taint, or a ſcrophulous habit; in which caſe it is generally incurable—yet, let none deſpair.

CURE.—On the firſt appearance of a conſumption, if the patient lives in any place where the air is confined, he ought immediately to quit it, and to make choice of a ſituation in the country, where the air is pure and free. Here he muſt not remain inactive, but take every day as much exerciſe as he can bear. It is a pity thoſe who attend the ſick ſeldom recommend riding in this diſeaſe, till the patient

is either unable to bear it, or the malady has become incurable; patients are likewiſe apt to trifle with themſelves. They cannot ſee how one of the common actions of life ſhould prove a remedy in an obſtinate diſeaſe, and therefore they reject it, while they greedily hunt after relief from medicine, merely becauſe they do not underſtand it. Next to proper air and exerciſe, a due attention ſhould be paid to diet, which ought to be calculated to leſſen the acrimony of the humours, and to nouriſh and ſupport the patient. For this purpoſe he ſhould keep chiefly to the uſe of vegetables and milk. Milk alone is of more value in this diſeaſe than the whole *materia medica*. Aſſes milk is commonly reckoned preferable to any other; but it cannot always be obtained; beſides, it is generally taken in very ſmall quantity; whereas, to produce any effects, it ought to make a conſiderable part of the patient's food. Some extraordinary cures in conſumptive caſes have been performed by women's milk; and, could it be obtained in ſufficient quantity, we would recommend it in preference to any other. It is better if the patient can ſuck it from the breaſt, than to drink it afterwards. A man who was reduced to ſuch a degree of weakneſs in a conſumption, as not to be able to turn in bed, ſucked his wife's breaſts, not with a view to reap any advantage from the milk, but to make her eaſy. Finding himſelf however greatly benefited by it, he continued to ſuck her till he became perfectly well, and is at preſent a ſtrong and healthy man. Some prefer butter-milk to any other, and it is indeed a very valuable medicine, if the ſtomach be able to bear it. It does not agree with every perſon at firſt: and is therefore often laid aſide without a ſufficient trial. It ſhould at firſt be taken ſparingly, and the quantity gradually increaſed, until it comes to be almoſt the ſole food. I never knew it ſucceed unleſs where the patient almoſt lived upon it. Wholeſome air, proper exerciſe, and a diet conſiſtent therewith, is the only courſe that can be depended on in a beginning conſumption. If the patient has ſtrength and ſufficient reſolution to perſiſt in ſuch a courſe, he will ſeldom be diſappointed of a cure: In the firſt ſtage of a conſumption, the cough may ſometimes be appeaſed by bleeding; and the expectoration may be promoted by the following medicines. Take freſh ſquills, gum-ammoniac, and powdered cardamum-ſeeds, of each a quarter of an ounce; beat them together in a mortar, and, if the maſs proves too hard for pills, a little of any kind of ſyrup may be added to it. This may be formed into pills of a moderate ſize, and four or five of them taken twice or thrice a-day, according as the patient's ſtomach will bear them. A mixture made of equal parts of lemon-juice, fine-honey, and ſyrup of poppies, may likewiſe be uſed. Four ounces of each of theſe may be ſimmered together in a ſaucepan, over a gentle fire, and a table-ſpoonful of it taken at any time when the cough is troubleſome. It is common in this ſtage of the diſeaſe to load the patient's ſtomach with oily and balſamic me-

dicines. Theſe, inſtead of removing the cauſe of the diſeaſe, tend rather to increaſe it by heating the blood, while they pall the appetite, relax the ſolids, and prove every way hurtful to the patient. Whatever is uſed for removing the cough, beſides riding and other proper regimen, ought to be medicines of a ſharp and cleanſing nature; as oxymel, ſyrup of lemon, &c. For the patient's drink we would recommend infuſions of the bitter plants mentioned in the Herbal, ſuch as ground-ivy, the ſmaller centaury, camomile-flowers, water-trefoil, &c. Theſe infuſions may be drunk at pleaſure. They ſtrengthen the ſtomach, promote digeſtion, rectify the blood, and at the ſame time anſwer all the purpoſes of dilutition, and quench thirſt much better than things that are luſcious or ſweet. But, if the patient ſpits blood, he ought to uſe, for his ordinary drink, infuſions or decoctions of the vulnerary roots, plants, &c. There are many other mucilaginous plants and ſeeds of a healing and a glutinating nature, recommended in the Herbal, from which decoctions or infuſions may be prepared with the ſame intention; as the orches, the quince-ſeed, coltsfoot, linſeed, ſarſaparilla, &c. The conſerve of roſes is here peculiarly proper. It may either be put into the decoction above deſcribed, or eaten by itſelf. No benefit is to be expected from trifling doſes of this medicine. It ſeldom proves of any ſervice, unleſs three or four ounces at leaſt are uſed daily for a conſiderable time. In this way I have ſeen it produce very happy effects, and would recommend it wherever there is a diſcharge of blood from the lungs. When the ſpitting up of groſs matter, oppreſſion of the breaſt, and the hectic ſymptoms, ſhow that an impoſthume is formed in the lungs, the Peruvian bark is the only drug which has any chance to counteract the general tendency which the humours then have to putrefaction. An ounce of it in powder may be divided into eighteen or twenty doſes, of which one may be taken every three hours through the day, in a little ſyrup, or a cup of horehound tea. We would not recommend the bark while there are any ſymptoms of an inflammation of the breaſt; but, when it is certainly known that matter is collected there, it is one of the beſt medicines which can be uſed. Few patients indeed have reſolution enough to give the bark a fair trial at this period of the diſeaſe, otherwiſe we have reaſon to believe that great benefit might be reaped from it.

A NERVOUS CONSUMPTION is a waſting or decay of the whole body, without any conſiderable degree of fever, cough, or difficulty of breathing. It is attended with indigeſtion, weakneſs, and want of appetite, &c. Thoſe who are of a fretful temper, who indulge in ſpirituous liquors, or who breathe an unwholeſome air, are moſt liable to this diſeaſe. We would recommend, for the cure of a nervous conſumption, a light and nouriſhing diet, plenty of exerciſe in a free open air, and the uſe of ſuch bitters as brace and ſtrengthen the ſtomach; as the Peruvian bark,

gentian-

gentian-root, camomile, horehound, &c. Theſe may be infuſed in water or wine, and a glaſs of it drunk frequently. Agreeable amuſements, cheerful company, and riding about, are preferable to all medicines in this diſeaſe. For which reaſon, when the patient can afford it, we would recommend a long journey of pleaſure, as the moſt likely means to reſtore his health. What is called a *ſymtomatic conſumption* cannot be cured without firſt removing the diſeaſe by which it is occaſioned. Thus, when a conſumption proceeds from the ſcrophula or king's-evil, from the ſcurvy, the aſthma, the venereal diſeaſe, &c. a due attention muſt be paid to the malady from whence it ariſes, and the regimen and medicine directed accordingly. When exceſſive evacuations of any kind occaſion a conſumption, they muſt not only be reſtrained, but the patient's ſtrength muſt be reſtored by gentle exerciſe, nouriſhing diet, and generous cordials. Young and delicate mothers often fall into conſumptions by giving ſuck too long. As ſoon as they perceive their ſtrength and appetite begin to fail, they ought immediately to wean the child, or provide another nurſe, otherwiſe they cannot expect a cure.

Of the SLOW or NERVOUS FEVER.

NERVOUS FEVERS may be occaſioned by whatever depreſſes the ſpirits, or impoveriſhes the blood; as grief, fear, anxiety, want of ſleep, intenſe thought, living on poor watery diet, unripe fruits, cucumbers, melons, muſhrooms, &c. They may likewiſe be occaſioned by damp, confined, or unwholeſome, air. Hence they are very common in rainy ſeaſons, and prove moſt fatal to thoſe who live in dirty, low, houſes, crowded ſtreets, hoſpitals, jails, or ſuch-like places. Perſons whoſe conſtitutions have been broken by exceſſive venery, frequent ſalivations, too free an uſe of purgative medicines, or any other exceſſive evacuations, are very liable to this diſeaſe.

CURE.—The patient muſt not be kept too low. His ſtrength and ſpirits ought to be ſupported by nouriſhing diet and cordials. For this purpoſe his gruel, panada, or whatever food he takes, muſt be mixed with wine according as the ſymptoms may require. Pretty ſtrong white-wine whey, or ſmall negus, ſharpened with the juice of orange or lemon, will be proper for his ordinary drink. Where a nauſea, load, and ſickneſs at ſtomach, prevail at the beginning of a fever, it will be neceſſary to give the patient a gentle vomit. Fifteen or twenty grains of ipecacuanha in fine powder will generally anſwer this purpoſe very well. This may be repeated any time before the third or fourth day, if the above ſymptoms continue. Vomits not only clean the ſtomach, but, by the general ſhock which they give, promote the perſpiration, and have many other excellent effects in ſlow fevers, where there are no ſigns of inflammation, and nature wants rouſing. Such as dare not venture upon a vomit, may clean the bowels by a ſmall doſe of Turkey rhubarb, or infuſion of ſenna and manna. In all fevers,

fevers, the great point is to regulate the ſymptoms, ſo as to prevent them from going to either extreme. Thus, in fevers of the inflammatory kind, where the force of the circulation is too great, or the blood denſe, and the fibres too rigid, bleeding and other evacuations are neceſſary. But in nervous fevers, where nature flags, where the blood is vapid and poor, and the ſolids relaxed, the lancet muſt be ſpared, and wine, with other cordials, plentifully adminiſtered. Though bleeding is generally improper in this diſeaſe, yet bliſtering is highly neceſſary. Bliſters may be applied at all times of the fever with great advantage. If the patient is delirious, he ought to be bliſtered on the neck or head; and it will be the ſafeſt courſe, while the inſenſibility continues, as ſoon as the diſcharge occaſioned by one bliſter abates, to apply another to ſome other part of the body, and by that means keep up a continual ſucceſſion of them till he be out of danger. A miliary eruption ſometimes breaks out about the ninth or tenth day. As eruptions are often critical, great care ſhould be taken not to retard Nature's operation in this particular. The eruption ought neither to be checked by bleeding or other evacuations, nor puſhed out by a hot regimen; but the patient ſhould be ſupported by gentle cordials, as wine-whey, ſmall negus, ſago-gruel with a little wine in it, and ſuch like. He ought not to be kept too warm; yet a kindly breathing ſweat ſhould by no means be checked. In deſperate caſes, where the hiccup and ſtarting of the tendons have already come on, we have ſometimes ſeen extraordinary effects from large doſes of muſk frequently repeated. Muſk is doubtleſs an antiſpaſmodic; and may be given to the quantity of a ſcruple three or four times a-day, or oftener if neceſſary. Sometimes it may be proper to add to the muſk a few grains of camphor, and ſalt of hartſhorn, as theſe tend to promote perſpiration and the diſcharge of urine. Thus fifteen grains of muſk, with three grains of camphor, and ſix grains of ſalt of hartſhorn, may be made into a bolus with a little ſyrup, and given as above. If the fever ſhould intermit, which it frequently does toward the decline, or if the patient's ſtrength ſhould be waſted with colliquative ſweats, &c. it will be neceſſary to give him the Peruvian bark. Half a dram, or a whole dram, if the ſtomach will bear it, of the bark in fine powder, may be given four or five times a-day, in a glaſs of red port or claret. Should the bark in ſubſtance not ſit eaſy on the ſtomach, an ounce of it in powder may be infuſed in a bottle of Liſbon or Rheniſh wine, for two or three days; afterwards it may be ſtrained, and a glaſs of it taken frequently.

Of the MALIGNANT, PUTRID, or SPOTTED, FEVER.

THIS fever is occaſioned by foul air, from a number of people being confined in a narrow place, not properly ventilated; from putrid animal and vegetable effluvia, &c. Hence it prevails in camps, jails, hoſpitals, and infirmaries, eſpe-

cially where ſuch places are too much crowded, and cleanlineſs is neglected. Putrid, malignant, or ſpotted, fevers, are highly infectious; and are therefore often communicated by contagion. For which reaſon all perſons ought to keep at a diſtance from thoſe affected with ſuch diſeaſes, unleſs their attendance is abſolutely neceſſary. Putrid fevers may be diſtinguiſhed from the inflammatory by the ſmallneſs of the pulſe, the great dejection of mind, the diſſolved ſtate of the blood, the petechiæ, or purple ſpots, and the putrid ſmell of the excrements. They may likewiſe be diſtinguiſhed from the low or nervous fever by the heat and thirſt being greater, the urine of a higher colour, and the loſs of ſtrength, dejection of mind, and all other ſymptoms more violent.

CURE.—The duration of putrid fevers is extremely uncertain; ſometimes they terminate betwixt the ſeventh and fourteenth day, and at other times they are prolonged for five or ſix weeks. Their duration depends greatly upon the conſtitution of the patient, and the manner of treating the diſeaſe; in which we ought to endeavour, as much as poſſible, to counteract the putrid tendency of the humours; to ſupport the patient's ſtrength and ſpirits; and to aſſiſt nature in expelling the cauſe of the diſeaſe, by gently promoting perſpiration and the other evacuations. Beſides the frequent admiſſion of freſh air, which is extremely neceſſary, we would recommend the uſe of vinegar, verjuice, juice of lemon, Seville orange, or any kind of vegetable acid that can be moſt readily obtained. Theſe ought frequently to be ſprinkled upon the floor, the bed, and every part of the room. The freſh ſkins of lemons or oranges ought likewiſe to be laid in different parts of the room, and they ſhould be frequently held to the patient's noſe. The uſe of acids in this manner would not only prove very refreſhing to the patient, but would likewiſe tend to prevent the infection from ſpreading among thoſe who attend him. Strong-ſcented herbs, as rue, tanſy, roſemary, wormwood, &c. may likewiſe be laid in different parts of the houſe, and ſmelled to by thoſe who go near the patient. If a vomit be given at the beginning of this fever, it will hardly ever fail to have a good effect; but, if the fever has gone on for ſome days, and the ſymptoms are violent, vomits are not ſo ſafe. The body however is always to be kept gently open by clyſters, or mild laxative medicines. Bleeding is ſeldom neceſſary in putrid fevers. If there be ſigns of an inflammation, it may ſometimes be permitted at the firſt onſet; but the repetition of it generally proves hurtful. Bliſters are never to be uſed unleſs in the greateſt extremities. If the petechiæ or ſpots ſhould ſuddenly diſappear, the patient's pulſe ſink remarkably, and a delirium, with other bad ſymptoms, come on, bliſtering may be permitted. In this caſe the bliſters are to be applied to the head, and inſide of the legs or thighs. But, as they are ſometimes apt to occaſion a gangrene, we would rather recommend warm cataplaſms or poultices

of

of muſtard and vinegar to be applied to the feet, having recourſe to bliſters only in the utmoſt extremity. It is common in the beginning of this fever to give the emetic tartar in ſmall doſes, repeated every ſecond or third hour, till it ſhall either vomit, purge, or throw the patient into a ſweat. This practice is very proper, provided it be not puſhed ſo far as to weaken the patient. In the moſt dangerous ſpecies of this diſeaſe, when it is attended with purple, livid, or black, ſpots, the Peruvian bark ſhould be adminiſtered; it muſt not only be given in large doſes, but be duly perſiſted in. The beſt method of adminiſtering it is certainly in ſubſtance; but, for thoſe who cannot take it in ſubſtance, it may be infuſed in wine. For preventing putrid fevers, we would recommend a ſtrict regard to cleanlineſs, a dry ſituation, ſufficient exerciſe in the open air; wholeſome food, and a moderate uſe of generous liquors. Infection ought above all things to be avoided. No conſtitution is proof againſt it; and, when a putrid fever ſeizes any perſon in a family, the greateſt attention is neceſſary to prevent the diſeaſe from ſpreading. Any one who is apprehenſive of having caught the infection, ought immediately to take a vomit, and to work it off by drinking plentifully of camomile-tea. This may be repeated in a day or two, if the apprehenſions ſtill continue, or any unfavourable ſymptoms appear.

Of the MILIARY FEVER.

SO called from the ſmall puſtules or bladders which appear on the ſkin, reſembling, in ſhape and ſize, the ſeeds of millet. The puſtules are either red or white, and ſometimes both are mixed together. It chiefly attacks the idle and the phlegmatic, or perſons of a relaxed habit. The young and the aged are more liable to it than thoſe in the vigour and prime of life. It is likewiſe more incident to women than men, eſpecially the delicate and the indolent, who, neglecting exerciſe, keep continually within doors, and live upon weak watery diet. Such females are extremely liable to be ſeized with this diſeaſe in childbed, and often loſe their lives by it. When this is a primary diſeaſe, it makes its attack, like moſt other eruptive fevers, with a ſlight ſhivering, which is ſucceeded by heat, loſs of ſtrength, a low quick pulſe, difficulty of breathing, with great anxiety and oppreſſion of the breaſt; and in childbed-women the milk generally goes away, and the other diſcharges ſtop.

CURE.—Sometimes the miliary fever approaches towards a putrid nature, in which caſe the patient's ſtrength muſt be ſupported with generous cordials, joined with acids; and, if the degree of putreſcence be great, the Peruvian bark muſt be adminiſtered. If the head be much affected, the body muſt be kept open by emollient clyſters. If the food and drink be properly regulated, there will be little occaſion for medicine. Where nature flags, and the eruption comes and goes, it may be neceſſary to keep up a ſtimulus, by a continual ſucceſſion

of ſmall bliſtering-plaſters; but we would not recommend above one at a time. If however the pulſe ſhould ſink remarkably, the puſtules fall in, and the head be affected, it will be neceſſary to apply ſeveral bliſters to the moſt ſenſible parts, as the inſide of the legs and thighs, &c. Bleeding is ſeldom neceſſary in this diſeaſe, and ſometimes it does much hurt, as it weakens the patient, and depreſſes his ſpirits. If the diſeaſe proves tedious, or the recovery ſlow, we would recommend the Peruvian bark, which may either be taken in ſubſtance, or infuſed in wine or water as the patient inclines. To avoid this diſeaſe, a pure dry air, ſufficient exerciſe, and wholeſome food, are neceſſary. Pregnant women ſhould guard againſt coſtiveneſs, and take daily as much exerciſe as they can bear, avoiding all green fruits, and other unwholeſome things; and, when in child-bed, they ought ſtrictly to obſerve a cool regimen.

Of the REMITTING FEVER.

THIS fever takes its name from a remiſſion of the ſymptoms, which happens ſometimes ſooner, and ſometimes later, but generally before the eighth day. The remiſſion is commonly preceded by a gentle ſweat, after which the patient ſeems greatly relieved, but in a few hours the fever returns. Theſe remiſſions return at very irregular periods, and are ſometimes of longer, ſometimes of ſhorter, duration; the nearer however that the fever approaches to a regular intermittent, the danger is the leſs. They are moſt frequent in cloſe calm weather, eſpecially after rainy ſeaſons, great inundations, or the like. No age, ſex, or conſtitution, is exempted from the attack of this fever; but it chiefly ſeizes perſons of a relaxed habit, who live in low dirty habitations, breathe an impure ſtagnated air, take little exerciſe, and uſe unwholeſome diet. The firſt ſymptoms of this fever are pains and giddineſs in the head, with alternate fits of heat and cold. The pulſe is ſometimes a little hard, but ſeldom full, and the blood, when let, rarely ſhows any ſigns of inflammation. In order to cure this fever, endeavours ſhould be uſed to bring it to a regular intermiſſion. This intention may be promoted by bleeding, if there be any ſigns of inflammation; but, when that is not the caſe, bleeding, ought by no means to be attempted, as it will weaken the patient, and prolong the diſeaſe. A vomit however will ſeldom be improper, and is generally of great ſervice. Twenty or thirty grains of ipecacuanha will anſwer this purpoſe very well; but, where it can be obtained, we would rather recommend a grain or two of emetic tartar, with five or ſix grains of ipecacuanha, to be made into a draught, and given for a vomit. This may be repeated once or twice at proper intervals, if the ſickneſs or naufea continues. The body ought to be kept open either by clyſters or gentle laxatives, as weak infuſions of ſenna and manna, ſmall doſes of the lenitive electuary, cream of tartar, tamarinds, ſtewed prunes, or the like; but all ſtrong draſtic purgatives are to be avoided.

avoided. By this courſe the fever in a few days may generally be brought to a pretty regular or diſtinct intermiſſion, in which caſe, the Peruvian bark may be adminiſtered, and it will ſeldom fail to perfect the cure.

Of the SMALL-POX.

THE ſmall-pox is commonly caught by infection. Since the diſeaſe was firſt brought from Arabia into Europe, the infection has never been wholly extinguiſhed; nor have any proper methods been taken for that purpoſe; ſo that now it has become in a manner conſtitutional. Children who have over-heated themſelves by running, wreſtling, &c. or adults after a debauch, are moſt apt to be ſeized with the ſmall-pox. The diſeaſe is ſo generally known, that a minute deſcription of it is unneceſſary. Children commonly look dull, ſeem liſtleſs and drowſy, for a few days before the more violent ſymptoms of the ſmall-pox appear. They are likewiſe more inclined to drink than uſual, have little appetite for ſolid food, complain of wearineſs, and, upon taking exerciſe, are apt to ſweat. Theſe are ſucceeded by ſlight fits of cold and heat in turns, which, as the time of the eruption approaches, become more violent, and are accompanied with pains of the head and loins, vomiting, &c. The pulſe is quick, with a great heat of the ſkin, and reſtleſſneſs. When the patient drops aſleep, he awakes in a kind of horror, with a ſudden ſtart, which is a very common ſymptom of the approaching eruption; as are alſo convulſion-fits in very young children. The moſt favourable ſymptoms are a ſlow eruption and an abatement of the fever as ſoon as the puſtules appear. In a mild diſtinct kind of ſmall-pox, the puſtules ſeldom appear before the fourth day from the time of ſickening, and they generally keep coming out gradually for ſeveral days after. Puſtules which are diſtinct, with a florid red baſis, and which fill with thick purulent matter, firſt of a whitiſh, and afterwards of a yellowiſh, colour, are the beſt. It is a moſt unfavourable ſymptom when petechiæ, or purple, brown, or black, ſpots, are interſperſed among the puſtules. Theſe are ſigns of a putrid diſſolution of the blood, and ſhow the danger to be very great. Bloody ſtools or urine, with a ſwelled belly, are bad ſymptoms; as is alſo a continual ſtrangury. Pale urine and a violent throbbing of the arteries of the neck are ſigns of an approaching delirium, or of convulſion-fits. When the face does not ſwell, or falls before the pock comes to maturity, it is very unfavourable. If the face begins to fall about the eleventh or twelfth day, and at the ſame time the hands and feet begin to ſwell, the patient generally does well; but, when theſe do not ſucceed to each other, there is reaſon to apprehend danger.

CURE.—All that is neceſſary during the eruptive fever, is to keep the patient cool and eaſy, allowing him to drink freely of ſome weak diluting liquor, as balm-tea, barley-water, clear whey, gruels, &c. Much miſchief is done at

this period by confining the patient to his bed, and plying him with warm cordials or ſudorific medicines. Every thing that heats and inflames the blood increaſes the fever, and puſhes out the puſtules prematurely. This has numberleſs ill effects. It not only increaſes the number of puſtules, but tends likewiſe to make them run into one another; and, when they have been puſhed out with too great violence, they generally fall in before they come to maturity. The food ought to be very light, and of a cooling nature, as panada, or bread boiled with equal quantities of milk and water, good apples roaſted or boiled with milk, and ſweetened with a little ſugar, or ſuch-like. The moſt dangerous period of this diſeaſe is what we call the ſecondary fever. This generally comes on when the pock begins to blacken or turn on the face, and moſt of thoſe who die of the ſmall-pox are carried off by this fever. Nature generally attempts, at the turn of the ſmall-pox, to relieve the patient by looſe ſtools. Her endeavours by this way are by no means to be counteracted, but promoted; and the patient at the ſame time ſupported by food and drink of a nouriſhing and cordial nature. If, at the approach of the ſecondary fever, the pulſe be very quick, hard, and ſtrong, the heat intenſe, and the breathing laborious, with other ſymptoms of an inflammation of the breaſt, the patient muſt immediately be bled. The quantity of blood to be let muſt be regulated by the patient's ſtrength, age, and the urgency of the ſymptoms. But, in the ſecondary fever, if the patient be faintiſh, the puſtules become ſuddenly pale, and if there be great coldneſs of the extremities, bliſters muſt be applied, and the patient muſt be ſupported with generous cordials. Wine and even ſpirits have ſometimes been given in ſuch caſes with amazing ſucceſs. It is generally neceſſary, after the ſmall-pox is gone off, to purge the patient. If however the body has been open through the whole courſe of the diſeaſe, or if butter-milk and other things of an opening nature have been drunk freely after the height of the ſmall-pox, purging becomes leſs neceſſary; but it ought never wholly to be neglected. For very young children, an infuſion of ſenna and prunes, with a little rhubarb, may be ſweetened with coarſe ſugar, and given in ſmall quantities till it operates. Thoſe who are farther advanced muſt take medicines of a ſharper nature. For example, a child of five or ſix years of age may take eight or ten grains of fine rhubarb in power over night, and the ſame quantity of jalap in powder next morning. This may be worked off with freſh broth or water-gruel, and may be repeated three or four times, five or ſix days intervening betwixt each doſe. For children farther advanced, and adults, the doſe muſt be increaſed in proportion to the age and conſtitution. When a cough, a difficulty of breathing, or other ſymptoms of a conſumption, ſucceed to the ſmall-pox, the patient muſt be ſent to a place where the air is good, and put upon a courſe of aſſes milk, with ſuch other treatment as hath already been directed in conſumptions.

Of

Of INOCULATION.

THIS ſalutary invention, which is the only effectual means of ſtopping the ravages of the ſmall-pox, has been known in Europe above half a century; yet, like moſt other uſeful diſcoveries, it made at firſt but ſlow progreſs. No diſcovery can be of general utility, while the practice of it is kept in the hands of a few. The fears, the jealouſies, the prejudices, and the oppoſite intereſts, of the faculty, are, and ever will be, the moſt effectual obſtacles to the progreſs of any ſalutary diſcovery. Hence it is that the practice of inoculation never became, in any meaſure, general, even in England, till taken up by men not bred to phyſic. Theſe not only rendered the practice more extenſive, but likewiſe more ſafe, and, by acting under leſs reſtraint than the regular practitioners, taught them that the patient's greateſt danger aroſe, not from the *want* of medical care, but from the *exceſs* of it. The preſent method of inoculating in Britain is to make two or three ſlanting inciſions in the arm, ſo ſuperficial as not to pierce quite through the ſkin, with a lancet wet with freſh matter taken from a ripe puſtule; afterwards the wounds are cloſed up, and left without any dreſſing. Some make uſe of a lancet covered with the dry matter; but this is leſs certain, and ought never to be uſed unleſs where freſh matter cannot be obtained; when this is the caſe, the matter ought to be moiſtened by holding the lancet for ſome time in the ſteam of warm water. We do not find that inoculation is at all conſidered as a medical operation in foreign countries. In Turkey, whence we learned it, it is performed by the women, and in the Eaſt Indies by the brachmins or prieſts. In this country it has been practiſed by numbers of the common people with aſtoniſhing ſucceſs; and, as the ſmall-pox is now become an epidemical diſeaſe in moſt parts of the known world, there ſeems no other choice left, but to render the malady as mild as poſſible. It is a matter of ſmall conſequence, whether a diſeaſe be entirely extirpated or rendered ſo mild as neither to deſtroy life nor hurt the conſtitution; and that this may be done by inoculation, does not now admit of a doubt. The numbers who die under inoculation hardly deſerve to be named. In the natural way one in four or five generally dies; but by inoculation not one of a thouſand. Nay, ſome can boaſt of having inoculated ten thouſand without the loſs of a ſingle patient. The moſt proper age for inoculating children is at two or three months old, before the teething begins. Thoſe who have conſtitutional diſeaſes may nevertheleſs be inoculated; it will often mend the habit of body; but ought to be performed at a time when they are moſt healthy. Accidental diſeaſes ſhould always be removed before inoculation. It is generally thought neceſſary to regulate the diet for ſome time before the diſeaſe be communicated. In children, however, great alteration in diet is ſeldom neceſſary, their food being commonly of the moſt ſimple and wholeſome kind, as milk, water-

gruel,

gruel, weak broths, bread, light pudding, mild roots, and white meats. We would recommend no other medical preparation than two or three mild purges, which ought to be ſuited to the age and ſtrength of the patient. The ſucceſs of inoculators does not depend on the preparation of their patients, but on their management of them while under the diſeaſe. Their conſtant care ſhould be to keep them cool, and their bodies gently open, by which means the fever is kept low, and the eruption greatly leſſened. The danger is ſeldom great when the puſtules are few; and their number is generally in proportion to the fever which precedes and attends the eruption. Hence the chief ſecret of inoculation conſiſts in regulating the eruptive fever, which generally may be kept ſufficiently low by the methods mentioned above. The regimen during the diſeaſe is in all reſpects the ſame as under the natural ſmall-pox. The patient muſt be kept cool, his diet ſhould be light, and his drink weak and diluting, &c. Should any bad ſymptoms appear, which is ſeldom the caſe, they muſt be treated in the ſame way as directed in the natural ſmall-pox. Purging is not leſs neceſſary after the ſmall-pox by inoculation than in the natural way, and ought by no means to be neglected.

VACCINE INOCULATION is the term for a practice lately introduced of inoculating perſons with the matter drawn from puſtules which riſe upon the teats of cows: this is ſaid (by its ſupporters) to prevent patients from ever taking the natural ſmall-pox. It has ſo far ſucceeded, as to procure its inventor, Dr. Jenner, grants from the parliament of 30,500l. ſterling for the communication of his diſcovery.

OF THE MEASLES.

THIS diſeaſe, like the ſmall-pox, proceeds from infection, and is more or leſs dangerous according to the conſtitution of the patient, the ſeaſon of the year, the climate, &c. It is uſually preceded by a ſhort cough, a heavineſs of the head and eyes, drowſineſs, and a running at the noſe. There is an inflammation and heat in the eyes, with a defluxion of ſharp tears, vomiting, and great acuteneſs of ſenſation, ſo that the patient cannot bear the light without pain. About the fourth day, ſmall ſpots, reſembling flea-bites, appear, firſt upon the face, then upon the breaſt, and afterwards on the extremities: theſe may be diſtinguiſhed from the ſmall-pox by their ſcarcely riſing above the ſkin. The fever, cough, and difficulty of breathing, inſtead of being removed by the eruption, as in the ſmall-pox, are rather increaſed; but the vomiting generally ceaſes. About the ſixth or ſeventh day from the time of ſickening, the meaſles begin to turn pale on the face, and afterwards upon the body; ſo that by the ninth day they entirely diſappear. Such as die of the meaſles generally expire about the ninth day from the invaſion, and are commonly carried off by inflammation of the lungs. The moſt favourable ſymptoms are, a moderate looſeneſs, a moiſt ſkin, and a plentiful diſcharge of urine. When the eruption ſuddenly falls in, and the patient is ſeized with a delirium, he is in the greateſt danger.

If the meaſles turn too ſoon of a pale colour, it is an unfavourable ſymptom, as are alſo great weakneſs, vomitings, reſtleſſneſs, and difficulty of ſwallowing. Purple or black ſpots appearing among the meaſles, are very unfavourable. When a continual cough, with hoarſeneſs, ſucceeds the diſeaſe, there is reaſon to ſuſpect an approaching conſumption of the lungs.

CURE.—Our buſineſs in this diſeaſe is to aſſiſt nature by proper cordials, in throwing out the morbific matter, if her efforts be too languid; but, when they are too violent, they muſt be reſtrained by evacuations, and cool diluting liquors, &c. We ought likewiſe to endeavour to appeaſe the moſt urgent ſymptoms, as the cough, reſtleſſneſs, and difficulty of breathing. A cool regimen is neceſſary here, as well as in the ſmall-pox. The food too muſt be light, and the drink diluting. The moſt ſuitable liquors are decoctions of liquorice, with marſh-mallow roots and ſarſaparilla, infuſions of linſeed, marygolds, elder-flowers, baum-tea, clarified whey, barley-water, and ſuch like. Bleeding is commonly neceſſary, particularly when the fever runs high, with difficulty of breathing, and great oppreſſion of the breaſt; but, if the diſeaſe be of a mild kind, bleeding may be omitted. If at the turn of the diſeaſe the fever aſſumes new vigour, and there appears great danger of ſuffocation, bleeding muſt be uſed according to the patient's ſtrength, and bliſters muſt be applied, with a view to prevent the load from being thrown on the lungs, where, if an inflammation ſhould fix itſelf, the patient's life will be in imminent danger. In caſe the meaſles ſhould ſuddenly diſappear, the patient muſt be ſupported with wine and cordials. Bliſters muſt be applied to the legs and arms, and the body rubbed all over with warm flannels. Should a cough, with difficulty of breathing, and other ſymptoms of a conſumption, remain after the meaſles, ſmall quantities of blood may be frequently let at proper intervals, as the patient's ſtrength and conſtitution will permit. He ought likewiſe to drink aſſes milk, to remove into a free air, and to ride daily on horſeback.

Of the SCARLET FEVER.

THE ſcarlet fever is ſo called from the colour of the patient's ſkin, which appears as if it were tinged with red wine. It begins, like other fevers, with coldneſs and ſhivering, without any violent ſickneſs. Afterwards the ſkin is covered with red ſpots, which are broader, more florid, and leſs uniform, than the meaſles. They continue two or three days, and then diſappear; after which the cuticle, or ſcarf-ſkin, falls off.

CURE.—There is ſeldom any occaſion for medicine in this diſeaſe, unleſs it is attended with putrid or malignant ſymptoms, in which caſe it is always dangerous; the patient is then not only affected with coldneſs and ſhivering, but

with languor, ſickneſs, and great oppreſſion; to theſe ſucceed exceſſive heat, nauſea, and vomiting, with a ſoreneſs of the throat; the pulſe is extremely quick, but ſmall and depreſſed; the breathing frequent and laborious; the ſkin hot, but not quite dry; the tongue moiſt, and covered with a whitiſh mucus: the tonſils inflamed and ulcerated. When the eruption appears, it brings no relief: on the contrary, the ſymptoms generally grow worſe, and freſh ones come on, as purging, delirium, &c. Should this diſeaſe be miſtaken for a ſimple inflammation, and treated with repeated bleedings, purgings, and cooling medicines, as is ſometimes the caſe, it generally proves fatal. The only medicines that can be depended on are cordials and antiſeptics, as the Peruvian bark, wine, ſnake-root, and the like. The treatment muſt be in general ſimilar to that of the putrid fever, or of the malignant ulcerous ſore throat.

Of the BILIOUS FEVER.

A CONTINUAL remitting or intermitting fever, accompanied with a copious evacuation of bile, either by vomit or ſtool, is denominated *bilious*. It generally makes its appearance about the end of ſummer, and ceaſes towards the approach of winter. It is moſt fatal in warm countries, eſpecially where the ſoil is marſhy, and when great rains are ſucceeded by ſultry heats. Thoſe who work without doors, and are expoſed to the night air, are moſt liable to this kind of fever.

CURE.—If there are ſymptoms of inflammation, it will be neceſſary to bleed, and to put the patient upon cool diluting regimen, recommended in the inflammatory fever. Saline draughts may likewiſe be frequently adminiſtered, and the patient's body kept open by clyſters or mild purgatives. But, if the fever ſhould remit or intermit, bleeding will ſeldom be neceſſary. In this caſe a vomit may be adminiſtered, and, if the body be bound, a gentle purge; after which the Peruvian bark will generally complete the cure.

Of the ERYSIPELAS, or St. ANTHONY's FIRE.

THE eryſipelas may be occaſioned by violent paſſions or affections of the mind; as fear, anger, &c. When the body has been heated to a certain degree, and is immediately expoſed to the cold air, ſo that the perſpiration is ſuddenly checked, an eryſipelas will often enſue. It may alſo be occaſioned by drinking to exceſs, by continuing too long in a warm bath, or by any thing that overheats the blood. If any of the natural evacuations be obſtructed, or in too ſmall quantity, it may cauſe an eryſipelas. The ſame effect will follow from the ſtoppage of artificial evacuations; as iſſues, ſetons, or the like. The diſorder comes on with ſhivering, thirſt, loſs of ſtrength, pain in the head and back, heat, reſtleſſneſs, and a quick pulſe: to which may be added vomiting, and ſometimes a

delirium. On the ſecond, third, or fourth, day, the part ſwells, becomes red, and ſmall puſtules appear: at which time the fever generally abates. When the eryſipelas is large, deep, and affects a very ſenſible part of the body, the danger is great. If the red colour changes into a livid or black, it will end in a mortification. Sometimes the inflammation cannot be diſcuſſed, but comes to a ſuppuration; in which caſe fiſtulas, a gangrene, or mortification, often enſue. Such as die of this diſeaſe are commonly carried off by the fever, which is attended with difficulty of breathing, and ſometimes with a delirium and great drowſineſs. They generally die about the ſeventh or eighth day.

CURE.—In this complaint much miſchief is often done by medicines, eſpecially by external applications: whereas the principal object ſhould be to promote perſpiration, which has a great tendency to carry off the diſeaſe. It is common to bleed in the eryſipelas; but this likewiſe requires caution. If however the fever be high, the pulſe hard and ſtrong, and the patient vigorous, it will be proper to bleed; but the quantity muſt be regulated by theſe circumſtances, and the operation repeated as the ſymptoms may require. If the patient has been accuſtomed to ſtrong liquors, and the diſeaſe attacks his head, bleeding is abſolutely neceſſary. Bathing the feet and legs frequently in lukewarm water, when the diſeaſe attacks the face or brain, has an excellent effect. It tends to make a derivation from the head, and ſeldom fails to relieve the patient. When bathing proves ineffectual, poultices, or ſharp ſinapiſms, may be applied to the ſoles of the feet for the ſame purpoſe. In caſes where bleeding is requiſite, it is likewiſe neceſſary to keep the body open. This may be effected by emollient clyſters, or ſmall doſes of nitre and rhubarb. Some indeed recommend very large doſes of nitre in the eryſipelas; but nitre ſeldom ſits eaſy on the ſtomach when taken in large doſes. It is however one of the beſt medicines when the fever and inflammation run high. Half a dram of it, with four or five grains of rhubarb, may be taken in the patient's ordinary drink four times a-day. When the eryſipelas ſeizes the head, ſo as to occaſion a delirium or ſtupor, bliſters muſt be applied to the neck, or behind the ears, and ſharp cataplaſms laid to the ſoles of the feet. In what is commonly called the *ſcorbutic eryſipelas*, which continues for a conſiderable time, it will only be neceſſary to give gentle laxatives, and ſuch things as purify the blood, and promote the perſpiration; and after the inflammation has been checked by opening medicines, the decoction of woods and bitter herbs may be drunk, as recommended for this diſeaſe in the Herbal.

Of the INFLAMMATION of the BRAIN.

THE ſymptoms which uſually precede a true inflammation of the brain, are pain of the head, redneſs of eyes, a violent fluſhing of the face, diſturbed ſleep, or a total

a total want of it, great dryneſs of the ſkin, coſtiveneſs, a retention of urine, a ſmall dropping of blood from the noſe, ſinging of the ears, and extreme ſenſibility of the nervous ſyſtem. When the brain itſelf is inflamed, the pulſe is always ſoft and low; but, when the inflammation only affects the integuments of the brain, viz. the *dura* and *pia mater*, it is hard.

CURE.—As this diſeaſe often proves fatal in a few days, it requires the moſt ſpeedy applications. When it is prolonged, or improperly treated, it ſometimes ends in madneſs, or a kind of ſtupidity which continues for life. Two things are chiefly to be attended to in the cure, viz. to leſſen the quantity of blood in the brain, and to retard the circulation towards the head. Nothing more certainly relieves the patient than a free diſcharge of blood from the noſe. When this comes of its own accord, it is by no means to be ſtopped, but rather promoted by applying cloths dipped in warm water to the part. When bleeding at the noſe does not happen ſpontaneouſly, it may be provoked by putting a ſtraw, or any other ſharp body, up the noſtril. Bleeding in the temporal arteries greatly relieves the head; but, as this operation cannot always be performed, we would recommend in its ſtead bleeding in the jugular veins. When the patient's pulſe and ſpirits are ſo low, that he cannot bear bleeding with the lancet, leeches may be applied to the temples. Theſe not only draw off the blood more gradually, but, by being applied nearer to the part affected, generally give more immediate relief. If the inflammation of the brain be occaſioned by the ſtoppage of evacuations either natural or artificial, as the menſes, iſſues, ſetons, or ſuch-like, all means muſt be uſed to reſtore them as ſoon as poſſible, or to ſubſtitute others in their ſtead. The patient's body muſt be kept open by ſtimulating clyſters or ſmart purges; and ſmall quantities of nitre ought frequently to be mixed with his drink. Two or three drams, or more, if the caſe be dangerous, may be uſed in the ſpace of twenty-four hours. If the diſeaſe proves obſtinate, and does not yield to the medicines, it will be neceſſary to apply a bliſtering-plaſter to the whole head.

Of the INFLAMMATION of the EYES.

THIS diſorder is attended with acute pain, heat, redneſs, and ſwelling.—The patient is not able to bear the light and ſometimes he feels a pricking pain, as if his eyes were pierced with a thorn. The pulſe is generally quick and hard, with ſome degree of fever. When the diſeaſe is violent, the neighbouring parts ſwell, and there is a throbbing or pulſation in the temporal arteries, &c. A ſlight inflammation of the eyes, eſpecially from an external cauſe, is eaſily cured: but, when the diſeaſe is violent, and continues long, it often leaves ſpecks upon the eyes, or dimneſs of ſight, and ſometimes total blindneſs.

CURE.

CURE.—The patient muſt abſtain from every thing of a heating nature. His food ſhould conſiſt chiefly of mild vegetables, weak broths, and gruels. His drink may be barley-water, balm-tea, common whey, and ſuch like. Bleeding, in a violent inflammation of the eyes, is always neceſſary. This ſhould be performed as near the part affected as poſſible. An adult may loſe ten or twelve ounces of blood from the jugular vein, and the operation may be repeated according to the urgency of the ſymptoms. If it ſhould not be convenient to bleed in the neck, the ſame quantity may be let from the arm, or any other part of the body. Leeches are often applied to the temples, or under the eyes, with good effect. The wounds muſt be ſuffered to bleed for ſome hours; and, if the bleeding ſtop ſoon, it may be promoted by the application of cloths dipt in warm water. In obſtinate caſes, it will be neceſſary to repeat this operation ſeveral times. Opening and diluting medicines are by no means to be neglected; but, if the inflammation does not yield to theſe evacuations, bliſters muſt be applied to the temples, behind the ears, or upon the neck, and kept open for ſome time. I have ſeldom known theſe, if long enough kept open, fail to remove the moſt obſtinate inflammation of the eyes; but, for this purpoſe, it is often neceſſary to continue the diſcharge for ſeveral weeks. Thoſe who are liable to frequent returns of this diſeaſe, ought conſtantly to have an iſſue in one or both arms, or a ſeton cut betwixt the ſhoulders. Bleeding or purging in the ſpring and autumn will be very beneficial to ſuch perſons.

Of the QUINSY, or INFLAMMATORY SORE THROAT.

THIS diſeaſe is frequently attended with great danger. When the inflammation comes on, the parts appear red and ſwelled; the patient complains of pain in ſwallowing; his pulſe is quick and hard, with other ſymptoms of a fever. If blood be let, it is generally covered with a tough coat of a whitiſh colour, and the patient ſpits a tough phlegm. As the ſwelling and inflammation increaſe, the breathing and ſwallowing become more difficult, the pain affects the ears; the eyes generally appear red; and the face ſwells. When the breathing is laborious, with ſtraitneſs of the breaſt, and anxiety, the danger is great. Though the pain in ſwallowing be very great, yet, while the patient breathes eaſy, there is not ſo much danger. An external ſwelling is no unfavourable ſymptom; but if it ſuddenly falls, and the diſeaſe affects the breaſt, the danger is very great. When a quinſy is the conſequence of ſome other diſeaſe, which has already weakened the patient, his ſituation is dangerous. A frothing at the mouth, and a ſwelled tongue, a pale ghaſtly countenance, and coldneſs of the extremities, are fatal ſymptoms.

CURE.—It is peculiarly neceſſary that the neck be kept warm; for which purpoſe ſeveral folds of ſoft flannel may be wrapt round it. The jelly of black cur-

rants is a medicine very much in eſteem for complaints of the throat; and indeed it is of ſome uſe. It ſhould be almoſt conſtantly kept in the mouth, and ſwallowed down leiſurely. It may likewiſe be mixed in the patient's drink, or taken any other way. When it cannot be obtained, the jelly of red currents, or of mulberries, may be uſed in its ſtead. Gargles are alſo very beneficial: they may be made of ſage-tea, with a little vinegar and honey; and may be uſed three or four times a-day; and, if the patient be troubled with tough viſcid phlegm, the gargle may be rendered more ſharp and cleanſing by adding to it a teaſpoon-full of ſpirit of ſal ammoniac. There is no diſeaſe wherein the benefit of bathing the feet and legs in lukewarm water is more apparent: that practice ought therefore never to be neglected. If the inflammation be violent, it will be proper, as ſoon as the ſymptoms appear, to bleed in the arm, or rather in the jugular vein, and to repeat the operation if circumſtances require. The body ſhould likewiſe be kept gently open. This may be done by giving the patient for his ordinary drink a decoction of figs and tamarinds, or ſmall doſes of rhubarb and nitre. Good effects are often produced from a bit of ſal prunel, or purified nitre, held in the mouth, and ſwallowed down as it melts. This promotes the diſcharge of ſaliva, by which means it anſwers the end of a gargle, while at the ſame time it abates the fever, by promoting the diſcharge of urine, &c. Bliſtering upon the neck or behind the ears, in violent inflammations of the throat, is very beneficial; and in bad caſes it will be very neceſſary to lay a bliſtering plaſter quite acroſs the throat, ſo as to reach from ear to ear. After the plaſters are taken off, the parts ought to be kept running by the application of iſſue-ointment, till the inflammation is gone; otherwiſe, upon their drying up, the patient will be in danger of a relapſe. When a difficulty of ſwallowing is not attended with an acute pain or inflammation, it only requires that the part be kept warm, and the throat frequently gargled with ſomething that may gently ſtimulate the glands, as a decoction of figs with vinegar and honey; to which may be added a little muſtard, or a ſmall quantity of ſpirits. But this gargle is never to be uſed where there are ſigns of inflammation. Thoſe who are ſubject to inflammations of the throat, in order to avoid that diſeaſe, and many others, ought to live temperate. Such as do not chooſe to obſerve this rule muſt have frequent recourſe to purging and other evacuations, to diſcharge the ſuperfluous humours. They ought likewiſe to beware of catching cold, and ſhould abſtain from aliment and medicines of an aſtringent or ſtimulating nature.

Of the MALIGNANT or ULCEROUS SORE THROAT.

THIS is evidently a contagious diſtemper, and is generally communicated by infection. Whole families, and even entire villages, often receive the infection from one perſon. Whatever tends to produce putrid or malignant fevers may likewiſe occaſion the putrid ulcerous ſore throat, as unwholeſome air, damaged proviſions,

proviſions, neglect of cleanlineſs, &c. It begins with alternate fits of ſhivering and heat. The pulſe is quick, but low and unequal, and generally continues ſo through the whole courſe of the diſeaſe. The tongue is white, and generally moiſt, which diſtinguiſhes this from an inflammatory diſeaſe. Upon looking into the throat, it appears ſwelled and of a florid red colour. Pale or aſh-coloured ſpots, however, are here and there interſperſed, and ſometimes one broad patch or ſpot, of an irregular figure, and pale white colour, ſurrounded with florid red, only appears. Theſe whitiſh ſpots or ſloughs cover ſo many ulcers. The putrid ulcerous ſore throat may be diſtinguiſhed from the inflammatory by the vomiting and looſeneſs with which it is generally uſhered in; the foul ulcers in the throat covered with a white or livid coat; and by the exceſſive weakneſs of the patient; with other ſymptoms of a putrid fever.

CURE.—The treatment in this kind of ſore throat is entirely different from that which is proper in the inflammatory. All evacuations, as bleeding, purging, &c. which weaken the patient, muſt be avoided. Cooling medicines, as nitre and cream of tartar, are likewiſe hurtful. Strengthening cordials alone can be uſed with ſafety; and theſe ought never to be neglected. If, at the beginning, there is a great nauſea, or inclination to vomit, the patient muſt drink an infuſion of green tea, camomile-flowers, or *carduus benedictus*, in order to cleanſe the ſtomach. If theſe are not ſufficient, he may take a few grains of the powder of ipecacuanha, or any other gentle vomit. If the diſeaſe is mild, the throat may be gargled with an infuſion of ſage or roſe leaves, to a gill of which may be added a ſpoonful or two of honey, and as much vinegar as will make it agreeably acid; but, when the ſymptoms are urgent, it will be of great benefit if the patient frequently receives into his mouth, through an inverted funnel, the ſteams of warm vinegar, myrrh, and honey. But, when the putrid ſymptoms run high, and the diſeaſe is attended with danger, the only medicine that can be depended upon is the Peruvian bark. It may be taken in ſubſtance, if the patient's ſtomach will bear it. If not, an ounce of bark groſsly powdered, with two drams of Virginian ſnake-root, may be boiled in a pint and a half of water to half a pint; to which a tea-ſpoon full of the elixir of vitriol may be added, and an ordinary tea-cup full of it taken every three or four hours. Bliſters are very beneficial in this diſeaſe, eſpecially when the patient's pulſe and ſpirits are low. They may be applied to the throat, behind the ears, or upon the back part of the neck. If the diſcharge of blood from the noſe happens, the ſteams of warm vinegar may be received up the noſtrils frequently; and the drink muſt be ſharpened with ſpirits of vitriol, or tincture of roſes. In caſe of a ſtrangury, the belly muſt be fomented with warm water, and emollient clyſters given three or four times a-day. After the violence of the diſeaſe is over, the body ſhould ſtill be kept open with mild purgatives; as manna, ſenna, rhubarb, or the like.

Of COLDS and COUGHS.

COLDS are the effect of an obſtructed perſpiration; and almoſt every cold is a kind of fever, which only differs in degree from ſome of thoſe that have already been treated of. No age, ſex, or conſtitution, is exempted from this diſeaſe; neither is it in the power of any medicine or regimen to prevent it. The inhabitants of every climate are liable to catch cold, nor can even the greateſt circumſpection defend them at all times from its attack. Indeed, if the human body could be kept conſtantly in an uniform degree of warmth, ſuch a thing as catching cold would be impoſſible: but, as that cannot be effected by any means, the perſpiration muſt be liable to many changes. When oppreſſion of the breaſt, a ſtuffing of the noſe, unuſual wearineſs, pain of the head, &c. give ground to believe that the perſpiration is obſtructed, or, in other words, that the perſon has caught cold, he ought immediately to leſſen his diet, at leaſt the uſual quantity of his ſolid food, and to abſtain from all ſtrong liquors. Would people ſacrifice a little time to eaſe and warmth, and practiſe a moderate degree of abſtinence, when the firſt ſymptoms of a cold appear, we have reaſon to believe that moſt of the bad effects which flow from an obſtructed perſpiration might be prevented. But, after the diſeaſe has gathered ſtrength by delay, all attempts to remove it often prove vain. A pleuriſy, a peripneumony, or a fatal conſumption of the lungs, are often the effects of common colds, notwithſtanding people affect to treat them with ſo much indifference and neglect, merely becauſe they are only colds. Hence it is, that colds deſtroy ſuch numbers of mankind. Like an enemy deſpiſed, they gather ſtrength from delay, till, at length, they become invincible. It is certain, however, that colds may be too much indulged. When a perſon, for every ſlight cold, ſhuts himſelf up in a warm room, ſwallows medicine, and drinks great quantities of warm liquor, it may occaſion ſuch a general relaxation of the ſolids as will not be eaſily removed. Bathing the feet in warm water, lying in bed, and drinking warm water-gruel, or other weak liquors, will ſooner take off ſpaſm, and reſtore the perſpiration, than all the hot ſudorific medicines in the world. This is all that is neceſſary for removing a common cold; and, if this courſe be taken at the beginning, it will ſeldom fail. When the ſymptoms do not yield to abſtinence, warmth, and diluting liquors, there is reaſon to fear the approach of ſome other diſeaſe, as an inflammation of the breaſt, an ardent fever, or the like; and the patient ſhould then be treated accordingly. The chief ſecret of preventing colds lies in avoiding, as far as poſſible, all extremes either of heat or cold, and in taking care, when the body is heated, to let it cool gradually.

Of a COMMON COUGH.

A COUGH is generally the effect of a cold, which has either been improperly treated or entirely neglected. When it proves obſtinate, there is always reaſon to fear the conſequence, as this ſhows a weak ſtate of the lungs, and is often the fore-runner of a conſumption. If the cough be violent, and the patient young and ſtrong, with a hard quick pulſe, bleeding will be proper; but, in weak and relaxed habits, bleeding rather prolongs the diſeaſe. When the patient ſpits freely, bleeding is unneceſſary, and ſometimes hurtful, as it tends to leſſen that diſcharge. When a cough is occaſioned by acrid humours tickling the throat and ſauces, the patient ſhould keep ſome ſoft pectoral lozenges almoſt conſtantly in his mouth; as the Pontefract liquorice-cakes, barley-ſugar, the common balſamic lozenges, Spaniſh juice, &c. Theſe blunt the acrimony of the humours, and, by taking off their ſtimulating quality, help to appeaſe the cough. In obſtinate coughs, proceeding from a flux of humours upon the lungs, it will often be neceſſary, beſides expectorating medicines, to have recourſe to iſſues, ſetons, or ſome other drain. In this caſe I have often obſerved the moſt happy effects from a Burgundy-pitch plaſter applied between the ſhoulders. About the bulk of a nutmeg of Burgundy-pitch may be ſpread thin upon a piece of ſoft leather, about the ſize of the hand, and laid between the ſhoulder-blades. It may be taken off and wiped every three or four days, and ought to be renewed once a fortnight or three weeks. This is indeed a cheap and ſimple medicine, and conſequently apt to be deſpiſed; but we will venture to affirm, that the whole *materia medica* does not afford an application more efficacious in almoſt every kind of cough. It has not, indeed, always an immediate effect; but, if kept on for ſome time, it will ſucceed where moſt other medicines fail. But coughs proceed from many other cauſes beſides defluxions upon the lungs. In theſe caſes the cure is not to be attempted by pectoral medicines. Thus, in a cough proceeding from a foulneſs and debility of the ſtomach, ſyrups, oil, mucilages, and all kinds of balſamic medicines, do hurt. The *ſtomach-cough* may be known from one that is owing to a fault in the lungs by this, that in the latter the patient coughs whenever he inſpires, or draws in his breath fully: but in the former that does not happen.

CURE.—The cure of this cough depends chiefly upon cleanſing and ſtrengthening the ſtomach; for which purpoſe gentle vomits and bitter purgatives are moſt proper. Thus, after a vomit or two, the ſacred tincture, as it is called, may be taken for a conſiderable time in the doſe of one or two table ſpoonfuls twice a-day, or as often as it is found neceſſary, to keep the body gently open. People may make this tincture themſelves, by infuſing an ounce of *hiera picra* in an Engliſh

pint of white-wine, letting it ſtand a few days, and then ſtraining it. In coughs which proceed from a debility of the ſtomach, the Peruvian bark is likewiſe of conſiderable ſervice. It may either be chewed, taken in powder, or made into a tincture along with other ſtomachic bitters. A *nervous cough* can only be removed by change of air and proper exerciſe. Immerſing the feet and hands in warm water will often appeaſe the violence of a nervous cough. When a cough is only the ſymptom of ſome other malady, it is in vain to attempt to remove it without firſt curing the diſeaſe from which it proceeds. Thus, when a cough is occaſioned by *teething*, keeping the body open, ſcarifying the gums, or whatever facilitates the cutting of the teeth, likewiſe appeaſes the cough. In like manner, when *worms* occaſion a cough, ſuch medicines as remove theſe vermin will generally cure the cough; as bitter purgatives, oily clyſters, and ſuch-like. Women, during the laſt months of pregnancy, are often greatly afflicted with a cough, which is generally relieved by bleeding and keeping the body open. They ought to avoid all flatulent food, and to wear a looſe eaſy dreſs.

Of the WHOOPING or CHIN COUGH.

THIS cough ſeldom affects adults, but proves often fatal to children. Whatever hurts the digeſtion, obſtructs the perſpiration, or relaxes the ſolids, diſpoſes to this diſeaſe: conſequently its cure muſt depend upon cleanſing and ſtrengthening the ſtomach, bracing the ſolids, and, at the ſame time, promoting perſpiration and the different ſecretions.

CURE.—One of the moſt effectual remedies in the chin-cough is change of air. This often removes the malady, even when the change ſeems to be from a purer to a leſs wholeſome air. This may in ſome meaſure depend on the patient's being removed from the place where the infection prevails. Moſt of the diſeaſes of children are infectious; nor is it at all uncommon to find the chin-cough prevailing in one town or village, when another, at a very ſmall diſtance, is quite free from it. But, whatever be the cauſe, we are ſure of the fact. No time ought therefore to be loſt in removing the patient to ſome diſtance, from the place where he caught the diſeaſe, and, if poſſible, into a more pure and warm air. When the diſeaſe proves violent, and the patient is in danger of being ſuffocated by the cough, he ought to be bled, eſpecially if there be a fever with a hard full pulſe. But as the chief intention of bleeding is to prevent an inflammation of the lungs, and to render it more ſafe to give vomits, it will ſeldom be neceſſary to repeat the operation; yet, if there be ſymptoms of an inflammation of the lungs, a ſecond, or even a third, bleeding may be requiſite. Vomits not only cleanſe the ſtomach, which in this diſeaſe is generally loaded with viſcid phlegm, but they likewiſe promote the perſpiration and other ſecretions; and ought therefore to be repeated according to

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the obſtinacy of the diſeaſe. They ſhould not be ſtrong; gentle vomits frequently repeated are leſs dangerous, and more beneficial, than ſtrong ones. Many people believe that oily, pectoral, and balſamic, medicines, poſſeſs wonderful virtues for the cure of the chin-cough, and accordingly exhibit them plentifully to patients of every age and conſtitution, without conſidering that every thing of this nature muſt load the ſtomach, hurt the digeſtion, and of courſe aggravate the diſorder. The *millepedes*, or woodlice, are greatly recommended for the cure of a chin-cough. Thoſe, who chooſe to make uſe of theſe inſects, may infuſe two ounces of them bruiſed in an Engliſh pint of ſmall white-wine for one night. Afterwards the liquor may be ſtrained through a cloth, and a table ſpoonful of it given to the patient three or four times a-day. Opiates are ſometimes neceſſary to allay the violence of the cough. For this purpoſe a little of the ſyrup of poppies, or five, ſix, or ſeven, drops of laudanum, according to the age of the patient, may be taken in a cup of hyſſop or penny-royal tea, and repeated occaſionally. The garlic ointment is a well-known remedy in North Britain for the chin-cough. It is made by beating in a mortar garlic with an equal quantity of hog's lard. With this the ſoles of the feet may be rubbed twice or thrice a-day; but the beſt method is to ſpread it upon a rag, and apply it in the form of a plaſter. It ſhould be renewed every night and morning at leaſt, as the garlic ſoon loſes its virtue. This is an exceeding good medicine both in the chin-cough and in moſt other coughs of an obſtinate nature. It ought not, however, to be uſed when the patient is very hot or feveriſh, leſt it ſhould increaſe thoſe ſymptoms.

INFLAMMATION OF THE STOMACH.

AN inflammation of the ſtomach may proceed from any of the cauſes which produce an inflammatory fever; as cold liquor drunk while the body is warm, obſtructed perſpiration, or the ſudden ſtriking-in of any eruption. It is attended with a fixed pain and burning heat in the ſtomach; great reſtleſſneſs and anxiety; a ſmall, quick, and hard, pulſe; vomiting, or, at leaſt, a nauſea and ſickneſs; exceſſive thirſt; coldneſs of the extremities; difficulty of breathing; cold clammy ſweats; and ſometimes convulſions and fainting fits. The ſtomach is ſwelled, and often feels hard to the touch. One of the moſt certain ſigns of this diſeaſe is the ſenſe of pain, which the patient feels upon taking any kind of food or drink, eſpecially if it be either too hot or too cold.

CURE.—All the acrimonious, heating, and irritating, food and drink are carefully to be avoided. The weakneſs of the patient may deceive the by-ſtanders, and induce them to give him wines, ſpirits, or other cordials; but theſe never fail to increaſe the diſeaſe, and often occaſion ſudden death. The inclination to vomit may likewiſe impoſe on the attendants, and make them think a vomit neceſſary; but

but that too is almoſt certain death. Bleeding is abſolutely neceſſary, and is almoſt the only thing that can be depended on. When the diſeaſe proves obſtinate, it will often be proper to repeat this operation ſeveral times, nor muſt the low ſtate of the pulſe deter us from doing ſo. The pulſe indeed generally riſes upon bleeding, and, as long as that is the caſe, the operation is ſafe. Frequent fomentations with lukewarm water, or a decoction of emollient vegetables, as recommended in the Herbal, are likewiſe beneficial. Flannel cloths dipped in theſe muſt be applied to the region of the ſtomach, and removed as they grow cool. In this, and all other inflammations of the bowels, an epiſpaſtic, or bliſtering-plaſter, applied over the part affected, is one of the beſt remedies known. The only internal medicines which can with ſafety be recommended are mild clyſters. Theſe may be made of warm water, or thin water-gruel; and, if the patient is coſtive, a little ſweet oil, honey, or manna, may be added. Clyſters anſwer the purpoſe of an internal fomentation, while they keep the body open, and at the ſame time nouriſh the patient, who is often in this diſeaſe unable to retain any food upon his ſtomach. For theſe reaſons they muſt not be neglected, as the patient's life may depend on them.

INFLAMMATION OF THE INTESTINES.

THIS is one of the moſt painful and dangerous diſeaſes that mankind is liable to. It generally proceeds from the ſame cauſes as the inflammation of the ſtomach; to which may be added coſtiveneſs, worms, eating unripe fruits, or great quantities of nuts, drinking hard windy malt liquors, as ſtale bottled beer or ale, ſour wine, cider, &c. The inflammation of the inteſtines is denominated *iliac paſſion, enteritis, &c.* according to the name of the parts affected. The treatment however is nearly the ſame, whatever part of the inteſtinal canal be the ſeat of the diſeaſe. The ſymptoms are nearly the ſame as in the foregoing diſeaſe; only the pain, if poſſible, is more acute, and is ſituated lower. The vomiting is likewiſe more violent, and ſometimes even the excrements, together with the clyſters and ſuppoſitories, are diſcharged by the mouth. While the pain ſhifts, and the vomiting only returns at certain intervals, and while the clyſters paſs downwards, there is ground to hope; but, when the clyſters and fæces are vomited, and the patient is exceeding weak, with a low fluttering pulſe, a pale countenance, and a diſagreeable or ſtinking breath, there is great reaſon to fear that the conſequences will prove fatal. Clammy ſweats, black fœtid ſtools, with a ſmall intermitting pulſe, and a total ceſſation of pain, are ſigns of a mortification already begun, and of approaching death.

CURE.—Bleeding, in this as well as in the inflammation of the ſtomach, is of the greateſt importance. It ſhould be performed as ſoon as the ſymptoms appear,

and muſt be repeated according to the ſtrength of the patient and the violence of the diſeaſe. A bliſter is likewiſe to be applied immediately over the part where the moſt violent pain is. This not only relieves the pain of the bowels, but even clyſters and purgative medicines, which before had no effect, will operate when the bliſters begin to riſe. The patient's feet and legs ſhould frequently be bathed in warm water, and cloths dipped in it applied to his belly. Bladders filled with warm water may likewiſe be applied to the region of the navel, and warm bricks, or bottles filled with warm water, to the ſoles of the feet. If the diſeaſe does not yield to clyſters and fomentations, recourſe muſt be had to pretty ſtrong purgatives; but, as theſe, by irritating the bowels, often increaſe their contraction, and by that means fruſtrate their own intention, it will be neceſſary to join them with opiates, which, by allaying the pain, and relaxing the ſpaſmodic contractions of the guts, greatly aſſiſt the operation of purgatives in this caſe. What anſwers the purpoſe of opening the body very well, is a ſolution of the bitter purging ſalts. Two ounces of theſe may be diſſolved in an Engliſh pint of warm water, or thin gruel, and a tea-cup full of it taken every half-hour till it operates. At the ſame time fifteen, twenty, or twenty-five, drops of laudanum may be given in a glaſs of peppermint or ſimple cinnamon-water, to appeaſe the irritation, and prevent the vomiting, &c. But it often happens that no liquid whatever will ſtay on the ſtomach. In this caſe the patient muſt take purging pills. I have generally found the following anſwer very well: Take jalap in powder, and vitriolated tartar, of each half a dram; opium one grain; Caſtile ſoap as much as will make the maſs fit for pills. Theſe muſt be taken at one doſe, and, if they do not operate in a few hours, the doſe may be repeated. If a ſtool cannot be procured by any of the above means, it will be neceſſary to immerſe the patient in warm water up to the breaſt. This often ſucceeds when other means have been tried in vain. The patient muſt continue in the water as long as he can eaſily bear it without fainting; and, if one immerſion has not the deſired effect, it may be repeated as ſoon as the patient's ſtrength and ſpirits are recruited. It is more ſafe for him to go frequently into the bath than to continue too long at a time; and it is often neceſſary to repeat it ſeveral times before it has the deſired effect. In deſperate caſes it is common to give quickſilver. This may be given to the quantity of ſeveral ounces or even a pound, but ſhould not exceed that. When there is reaſon to ſuſpect a mortification of the guts, this medicine ought not to be tried: in that caſe it cannot cure the patient, and will only haſten his death. But, when the obſtruction is occaſioned by any cauſe that can be removed by force, quickſilver is not only a proper medicine, but the beſt that can be adminiſtered, as it is the fitteſt body we know for making its way through the inteſtinal canal.

Of the CHOLIC.

THE cholic has a great reſemblance to the two preceding diſeaſes, both in its ſymptoms and method of cure. It is generally attended with coſtiveneſs and acute pain of the bowels; and requires diluting diet, evacuations, fomentations, &c. Cholics are variouſly, denominated, according to their cauſes, as the *flatulent*, the *bilious*, the *hyſteric*, the *nervous*, &c.

CURE.—When the diſeaſe proceeds from windy liquor, green fruit, ſour herbs, or the like, the beſt medicine on the firſt appearance of the ſymptoms is a dram of brandy, gin, or any good ſpirits. The patient ſhould likewiſe ſit with his feet upon a warm hearth-ſtone, or apply warm bricks to them; and warm cloths may be applied to his ſtomach and bowels. This is the only cholic wherein ardent ſpirits, ſpiceries, or any thing of a hot nature, may be ventured upon. Nor indeed are they to be uſed here unleſs at the very beginning, before any ſymptoms of inflammation appear. The *bilious* cholic is attended with very acute pains about the region of the navel. The patient complains of great thirſt, and is generally coſtive. He vomits a hot, bitter, yellow-coloured, bile, which, being diſcharged, ſeems to afford ſome relief, but is quickly followed by the ſame violent pain as before. As the diſtemper advances, the propenſity to vomit ſometimes increaſes ſo as to become almoſt continual, and the proper motion of the inteſtines is ſo far perverted, that there are all the ſymptoms of an impending iliac paſſion. If the patient be young and ſtrong, and the pulſe full and frequent, it will be proper to bleed, after which clyſters may be adminiſtered. Clear whey or gruel, ſharpened with the juice of lemon, or cream of tartar, muſt be drunk freely: it will be neceſſary likewiſe to foment the belly with cloths dipped in warm water; and, if this ſhould not ſucceed, the patient muſt be immerſed up to the breaſt in warm water. In the bilious cholic the vomiting is often very difficult to reſtrain. When this happens, the patient may drink a decoction of toaſted bread, or an infuſion of garden-mint in boiling water. Such as are liable to frequent returns of the bilious cholic ſhould uſe fleſh ſparingly, and live chiefly upon a light vegetable diet. They ſhould likewiſe take frequently a doſe of cream of tartar with tamarinds, or any other cool acid purge. The *hyſteric* cholic bears a great reſemblance to the bilious. It is attended with acute pains about the region of the ſtomach, vomiting, &c. But what the patient vomits in this caſe is commonly of a greeniſh colour. There is great ſinking of the ſpirits, with dejection of mind and difficulty of breathing, which are the characteriſtic ſymptoms of this diſorder. Sometimes it is accompanied with the jaundice; but this generally goes off of its own accord in a few days. In this cholic all evacuations, as bleeding, purging, vomiting, &c.

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do hurt. Every thing that weakens the patient, or ſinks the ſpirits, is to be avoided. If however the vomiting ſhould prove violent, lukewarm water, or ſmall poſſet, may be drunk to cleanſe the ſtomach. Afterwards the patient may take fifteen, twenty, or twenty-five, drops of liquid laudanum in a glaſs of cinnamon-water. This may be repeated every ten or twelve hours till the ſymptoms abate. The *nervous* cholic prevails among miners, ſmelters of lead, plumbers, the manufacturers of white lead, &c. It is very common in the cider-counties of England, and is ſuppoſed to be occaſioned by the leaden veſſels uſed in preparing that liquor. No diſeaſe of the bowels is attended with more excruciating pain than this. Nor is it ſoon at an end. I have known it to continue eight or ten days with very little intermiſſion, the body all the while continuing bound in ſpite of medicine: yet at length yield, and the patient recover. It generally however leaves the patient weak, and often ends in a palſy. The general treatment of this diſeaſe is the ſame with that of the iliac paſſion, or inflammation of the bowels.

INFLAMMATION OF THE KIDNEYS.

THIS diſeaſe may proceed from any of thoſe cauſes which produce an inflammatory fever. It may likewiſe be occaſioned by wounds or bruiſes of the kidneys; ſmall ſtones or gravel lodging within them; by hard riding or walking, eſpecially in hot weather; or whatever drives the blood too forcibly into the kidneys, may occaſion this malady.

CURE.—Every thing of a heating or ſtimulating nature is to be avoided. Emollient and thin liquors muſt be plentifully drunk; as clear whey, or balm tea ſweetened with honey, decoctions of marſh-mallow roots, with barley and liquorice, &c. Bleeding is generally neceſſary, eſpecially at the beginning. Ten or twelve ounces may be let from the arm or foot; and, if the pain and inflammation continue, the operation may be repeated in twenty-four hours, eſpecially if the patient be of a full habit. Leeches may likewiſe be applied to the hæmorrhoidal veins, as a diſcharge from theſe will greatly relieve the patient. Cloths dipped in warm water, or bladders filled with it, muſt be applied as near as poſſible to the part affected, and renewed as they grow cool. If the bladder be filled with a decoction of mallows and camomile-flowers, to which a little ſaffron is added, and mixed with about a third part of new milk, it will be ſtill more beneficial. Emollient clyſters ought frequently to be adminiſtered; and, if theſe do not open the body, a little ſalt and honey or manna may be added to them. The ſame courſe is to be followed where gravel or a ſtone is lodged in the kidney; but when the gravel or ſtone is ſeparated from the kidney, and lodges in the ureter, it will be proper, beſides the fomentations, to rub the ſmall of the back with ſweet oil, and

to give gentle diuretics; as juniper-water ſweetened with the ſyrup of marſh-mallow; a tea-ſpoonful of the ſweet ſpirits of nitre, with a few drops of laudanum, may now and then be put in a cup of the patient's drink. He ought likewiſe to take exerciſe on horſeback, or in a carriage, if he be able to bear it.

INFLAMMATION OF THE BLADDER.

THE inflammation of the bladder proceeds in a great meaſure from the ſame cauſes as that of the kidneys. It is known by an acute pain towards the bottom of the belly, and difficulty of paſſing urine, with ſome degree of fever, a conſtant inclination to go to ſtool, and a perpetual deſire to make water. This diſeaſe muſt be treated on the ſame principles as the one immediately preceding. The patient ſhould abſtain from every thing that is of a hot, acrid, and ſtimulating, quality, and ſhould live entirely upon ſmall broths, gruels, or mild vegetables. But a ſtoppage of urine may proceed from other cauſes beſides an inflammation of the bladder; as a ſwelling of the hæmorrhoidal veins; hard *fæces* lodged in the *rectum;* a ſtone in the bladder; excreſcences in the urinary paſſages, a palſy of the bladder, hyſteric affections, &c. In all which caſes, mild and gentle applications are the ſafeſt; ſtrong diuretic medicines, or things of an irritating nature, generally increaſe the danger. I have known ſome perſons kill themſelves by introducing probes into the urinary paſſages, to remove, as they thought, ſomewhat that obſtructed the diſcharge of urine; and others bring on a violent inflammation of the bladder, by uſing ſtrong diuretics, as oil of turpentine, &c. for that purpoſe.

INFLAMMATION OF THE LIVER.

THIS diſeaſe is known by a painful tenſion of the right ſide under the falſe ribs, attended with ſome degree of fever, a ſenſe of weight, or fullneſs of the part, difficulty of breathing, loathing of food, great thirſt, with a pale or yellowiſh colour of the ſkin and eyes. This diſeaſe, if properly treated, is ſeldom mortal. If it ends in a ſuppuration, and the matter cannot be diſcharged outwardly, the danger is then great. When the ſcirrhus of the liver enſues, the patient, if he obſerve a proper regimen, may nevertheleſs live a number of years; but, if he indulge in animal food and ſtrong liquors, or take medicines of an acrid or irritating nature, the ſcirrhus will be converted into a cancer, which muſt infallibly prove fatal.

CURE.—The ſame regimen is to be obſerved in this as in other inflammatory diſorders. All hot things are to be carefully avoided; and cool diluting liquors, as whey, barley-water, &c. drunk freely. The food muſt be light and thin, and the body, as well as the mind, kept eaſy and quiet. Bleeding is proper at the beginning, and it will often be neceſſary, even though the pulſe ſhould not feel hard, to repeat it.

it. All violent purgatives are to be avoided; the body however muſt be kept gently open. A decoction of tamarinds, with a little honey or manna, will anſwer this purpoſe very well. The ſide affected muſt be fomented in the manner directed in the foregoing diſeaſes. Mild laxative clyſters ſhould be frequently adminiſtered; and, if the pain ſhould notwithſtanding continue violent, a bliſtering-plaſter may be applied over the part affected. Medicines which promote the ſecretion of urine have a very good effect here. For this purpoſe, half a dram of purified nitre, or a tea-ſpoonful of the ſweet ſpirits of nitre, may be taken in a cup of the patient's drink three or four times a-day. All inflammations of the viſcera muſt in general be treated upon the ſame principles as thoſe already mentioned. The chief rule with reſpect to all of them, is to let blood, to avoid every thing that is ſtrong, or of a heating nature, to apply warm fomentations to the part affected, and to cauſe the patient to drink a ſufficient quantity of warm diluting liquors.

Of the CHOLERA MORBUS.

THE cholera morbus is a violent purging and vomiting, attended with gripes, ſickneſs, and a conſtant deſire to go to ſtool. It comes on ſuddenly, and is moſt common in autumn. There is hardly any diſeaſe that kills more quickly than this, when proper means are not uſed in due time for removing it. It is generally preceded by the heart-burn, ſour belchings, and flatulencies, with pain of the ſtomach and inteſtines. To theſe ſucceed exceſſive vomiting, and purging of green, yellow, or blackiſh-coloured, bile, with a diſtenſion of the ſtomach, and violent griping pains. There is likewiſe a great thirſt, with a very quick unequal pulſe, and often a fixed acute pain about the region of the navel. As the diſeaſe advances, the pulſe often ſinks ſo low as to become quite imperceptible, the extremities grow cold, or cramped, and are often covered with a clammy ſweat; the urine is obſtructed, and there is a palpitation of the heart. Violent hiccup, fainting, and convulſions, are the ſigns of approaching death.

CURE.—At the beginning of this diſeaſe, the efforts of nature to expel the offending cauſe ſhould be aſſiſted, by promoting the purging and vomiting. For this purpoſe the patient muſt drink freely of diluting liquors; as whey, butter-milk, warm-water, thin water-gruel, ſmall poſſet, or, what is perhaps preferable to any of them, very weak chicken broth. This ſhould not only be drunk plentifully to promote the vomiting, but a clyſter of it given every hour in order to promote the purging. Warm negus, or ſtrong wine-whey, will likewiſe be neceſſary to ſupport the patient's ſpirits, and promote perſpiration. His legs ſhould be bathed in warm water, and afterwards rubbed with flannel cloths, or wrapped in warm blankets, and warm bricks applied to the ſoles of his feet. Flannels

wrung out of warm ſpirituous fomentations ſhould likewiſe be applied to the region of the ſtomach. When the violence of the diſeaſe is over, to prevent a relapſe, it will be neceſſary, for ſome time, to continue the uſe of ſmall doſes of laudanum. Ten or twelve drops may be taken in a glaſs of wine, at leaſt twice a-day, for eight or ten days. The patient's food ought to be nouriſhing, but taken in ſmall quantities, and he ſhould uſe moderate exerciſe. As the ſtomach and inteſtines are generally much weakened, an infuſion of the bark, or bitter herbs, in ſmall wine, ſharpened with the elixir of vitriol, may be drunk for ſome time.

Of a DIARRHŒA, or LOOSENESS.

A LOOSENESS, in many caſes, is not to be conſidered as a diſeaſe, but rather as a ſalutary evacuation. It ought therefore never to be ſtopped unleſs when it continues too long, or evidently weakens the patient.

CURE.—A looſeneſs, occaſioned by the obſtruction of any cuſtomary evacuation, generally requires bleeding. If that does not ſucceed, other evacutions may be ſubſtituted in the room of thoſe which are obſtructed. At the ſame time every method is to be taken to reſtore the uſual diſcharges, as not only the cure of the diſeaſe, but the patient's life, may depend on this. A diarrhœa, or looſeneſs, which proceeds from violent paſſions or affections of the mind, muſt be treated with the greateſt caution. Vomits in this caſe are highly improper. Nor are purges ſafe, unleſs they be very mild, and given in ſmall quantities. Opiates, and other antiſpaſmodic medicines, are moſt proper. Ten or twelve drops of liquid laudanum may be taken in a cup of valerian or penny-royal tea, every eight or ten hours, till the ſymptoms abate. Eaſe, cheerfulneſs, and tranquillity of mind, are here of the greateſt importance. When a looſeneſs proceeds from acrid or poiſonous ſubſtances taken into the ſtomach, the patient muſt drink large quantities of diluting liquors, with oil or fat broths, to promote vomiting and purging. Afterwards, if there be reaſon to ſuſpect that the bowels are inflamed, bleeding will be neceſſary. Small doſes of laudanum may likewiſe be taken to remove their irritation. From whatever cauſe a looſeneſs proceeds, when it is found neceſſary to check it, the diet ought to conſiſt of rice boiled with milk, and flavoured with cinnamon; rice-jelly; ſago, with red-port; and the lighter ſorts of fleſh-meat roaſted. The drink may be thin water-gruel, rice-water, or weak broth made from lean veal, or with a ſheep's-head, as being more gelatinous than mutton, beef, or chicken, broth.

Of VOMITING.

VOMITING may proceed from various cauſes; as, exceſs in eating and drinking, foulneſs of the ſtomach, the acrimony of the aliments, or a tranſlation of the morbific matter of ulcers, of the gout, the eryſipelas, or other diſeaſes, to the ſtomach and bowels.

CURE.

CURE.—When vomiting proceeds from a foul ſtomach or indigeſtion, it is not to be conſidered as a diſeaſe, but as the cure of a diſeaſe. It ought therefore to be promoted by drinking lukewarm water or thin gruel. If this does not put a ſtop to the vomiting, a doſe of ipecacuanha may be taken, and worked off with weak camomile-tea. If vomiting proceeds from weakneſs of the ſtomach, bitters will be of ſervice. Peruvian bark infuſed in wine or brandy, with as much rhubarb as will keep the body gently open, is an excellent medicine in this caſe. The elixir of vitriol is alſo a good medicine; it may be taken in the doſe of fifteen or twenty drops, twice or thrice a-day, in a glaſs of wine or water. Habitual vomitings are ſometimes alleviated by making oiſters a principal part of the diet. A vomiting, which proceeds from acidities in the ſtomach, is relieved by alkaline purges. The beſt medicine of this kind is the magneſia alba, a tea-ſpoonful of which may be taken in a diſh of tea or a little milk, three or four times a-day, or oftener if neceſſary, to keep the body open. I have always found the ſaline draughts, taken in the act of effervescence, of ſingular uſe in ſtopping a vomiting, from whatever cauſe it proceeded. Theſe may be prepared by diſſolving a dram of the ſalt of tartar in an ounce and a half of freſh lemon-juice, and adding to it an ounce of peppermint-water, the ſame quantity of ſimple cinnamon water, and a little white ſugar. This draught muſt be ſwallowed before the effervescence is quite over, and may be repeated every two hours, or oftener, if the vomiting be violent.

Of the DIABETES.

IN a diabetes, the urine generally exceeds in quantity all the liquid food which the patient takes. It is thin and pale, of a ſweetiſh taſte, and an agreeable ſmell. The patient has a continual thirſt, with ſome degree of fever; his mouth is dry, and he ſpits frequently a frothy ſpittle. The ſtrength fails, the appetite decays, and the fleſh waſtes away till the patient is reduced to ſkin and bone. There is a heat of the bowels; and frequently the loins, teſticles, and feet, are ſwelled.

CURE.—This diſeaſe may generally be cured at the beginning; but, after it has continued long, the cure becomes very difficult. Every thing that ſtimulates the urinary paſſages, or tends to relax the habit, muſt be avoided. For this reaſon the patient ſhould live chiefly on ſolid food. His thirſt may be quenched with acids; as ſorrel, juice of lemon, or vinegar. The mucilaginous vegetables, as rice, ſago, and ſalop, with milk, are the moſt proper food. Of animal ſubſtances, ſhell-fiſh are to be preferred; as oiſters, crabs, &c. The drink may be Briſtol water, (a conſtant courſe of which has done wonders in this diſorder, and is reckoned a ſpecific;) when that cannot be obtained, lime-water, in which a due proportion of oak-bark has been macerated, may be uſed. The patient

ought daily to take exercise, but it should be so gentle as not to fatigue him. He should lie upon a hard bed or mattress. Nothing hurts the kidneys more than lying too soft. Gentle purges, if the patient be not too much weakened by the disease, have a good effect. They may consist of rhubarb, with cardanum-seed, or any other spiceries, infused in wine, and may be taken in such quantity as to keep the body gently open. The patient must next have recourse to astringents and corroborants. Half a dram of powder, made of equal parts of alum and the inspissated juice, commonly called *Terra Japonica*, may be taken four times a-day, or oftener, if the stomach will bear it; otherwise, Peruvian bark steeped in red wine. Opiates are of service in this disease, even though the patient rests well. They take off spasm and irritation, and at the same time lessen the force of the circulation. Ten or twelve drops of liquid laudanum may be taken in a cup of the patient's drink three or four times a-day.

Of a SUPPRESSION of URINE.

A SUPPRESSION of urine may proceed from various causes; as an inflammation of the kidneys or bladder, small stones or gravel lodging in the urinary passages, hard fæces lying in the rectum, pregnancy, a spasm or contraction of the neck of the bladder, clotted blood in the bladder itself, a swelling of the hæmorrhoidal veins, &c.

CURE.—We would chiefly recommend, in all obstructions of urine, fomentations and evacuants. Bleeding, as far as the patient's strength will permit, if necessary, especially where there are symptoms of topical inflammation. Bleeding in this case not only abates the fever, by lessening the force of the circulation, but, by relaxing the solids, it takes off the spasm or stricture upon the vessels which occasioned the obstruction. After bleeding, fomentations must be used. These may either consist of warm water alone, or of decoctions of mild vegetables; as mallows, camomile-flowers, and such other herbs as are recommended in the Herbal. Cloths dipped in these may either be applied to the part affected, or a large bladder filled with the decoction may be kept continually upon it. Persons subject to a suppression of urine ought to live very temperate. Their diet should be light, and their liquor diluting. They should avoid all acids and austere wines; should take sufficient exercise, lie hard, and avoid study and sedentary occupations.

Of the GRAVEL and STONE.

THE stone and gravel may be occasioned by high living; the use of strong astringent wines; a sedentary life; lying too hot, soft, or too much on the back; the constant use of water impregnated with earthy or stony particles; aliments of an astringent

aſtringent or windy nature, &c. It may likewiſe proceed from an hereditary diſpoſition. Perſons in the decline of life, and thoſe who have been much afflicted with the gout or rheumatiſm, are moſt liable to it.

CURE.—Perſons afflicted with the gravel or ſtone ſhould avoid aliments of a windy or heating nature, as ſalt meats, ſour fruits, &c. The diet ought chiefly to conſiſt of ſuch things as tend to promote the ſecretion of urine, and to keep the body open. Artichokes, aſparagus, ſpinage, lettuce, parſley, ſuccory, purſlane, turnips, potatoes, carrots, and radiſhes, may be ſafely eaten. Onions, leeks, and celery, are, in this caſe, reckoned medicinal. The moſt proper drinks are whey, butter-milk, milk and water, barley-water; decoctions or infuſions of the roots of marſh-mallows, parſley, liquorice, or of other mild mucilaginous vegetables, as linſeed, lime-tree buds or leaves, &c. If the patient has been accuſtomed to generous liquors, he may drink ſmall gin-punch without acid. In what is called a fit of the gravel, which is commonly occaſioned by a ſtone ſticking in the ureter or ſome part of the urinary paſſages, the patient muſt be bled; warm fomentations ſhould likewiſe be applied to the part affected, emollient clyſters adminiſtered, and diluting mucilaginous liquors drunk, &c. The treatment in this caſe muſt be the ſame as pointed out for an inflammation of the kidneys and bladder, &c. Patients who are ſubject to frequent fits of gravel in the kidneys, but have no ſtone in the bladder, are adviſed to drink every morning, two or three hours before breakfaſt, an Engliſh pint of oyſter or cockle ſhell lime-water; for, though this quantity might be too ſmall to have any ſenſible effect in diſſolving a ſtone in the bladder, yet it may very probably prevent its growth. When a ſtone is formed in the bladder, Alicant ſoap, and oyſter or cockle ſhell lime-water, may be taken in the following manner: The patient muſt ſwallow every day, in any form that is leaſt diſagreeable, an ounce of the internal part of Alicant ſoap, and drink three or four Engliſh pints of oyſter or cockle ſhell lime-water. The ſoap is to be divided into three doſes; the largeſt to be taken faſting in the morning early; the ſecond at noon; and the third at ſeven in the evening; drinking with each doſe a large draught of the lime-water; the remainder of which he may take any time betwixt dinner and ſupper, inſtead of other liquors. The cauſtic alkali, or ſoap-lees, is the medicine chiefly in vogue at preſent for the ſtone. It may be prepared by mixing two parts of quick-lime with one of pot-aſhes, and ſuffering them to ſtand till the lixivium be formed, which muſt be carefully filtrated before it be uſed. If the ſolution does not happen readily, a ſmall quantity of water may be added to the mixture. The patient muſt begin with ſmall doſes of the lees, as thirty or forty drops, and increaſe by degrees, as far as the ſtomach will bear it.

Of INVOLUNTARY DISCHARGES of BLOOD.

INVOLUNTARY diſcharges of blood are ſo far from being always dangerous, that they prove often ſalutary. When ſuch diſcharges are critical, which is frequently the caſe in fevers, they ought not to be ſtopped. Nor indeed is it proper at any time to ſtop them, unleſs they be ſo great as to endanger the patient's life. Moſt people, afraid of the ſmalleſt diſcharge of blood from any part of the body, fly immediately to the uſe of ſtyptic and aſtringent medicines, by which means an inflammation of the brain, or ſome other fatal diſeaſe, is occaſioned, which, had the diſcharge been allowed to go on, might have been prevented. Periodical diſcharges of blood, from whatever part of the body they proceed, muſt not be ſtopped. They are always the efforts of nature to relieve herſelf; and fatal diſeaſes have often been the conſequence of obſtructing them. It may indeed ſometimes be neceſſary to check the violence of ſuch diſcharges; but even this requires the greateſt caution. In the early period of life, bleeding at the noſe is very common. Thoſe who are farther advanced in years are more liable to *hæmoptoe*, or diſcharge of blood from the lungs. After the middle period of life, hœmorrhoidal fluxes are moſt common; and, in the decline of life, diſcharges of blood from the urinary paſſages. Bleeding at the noſe, to perſons who abound with blood, is very ſalutary. It often cures a vertigo, the head-ach, a phrenzy, and even an epilepſy. In fevers, where there is a great determination of blood towards the head, it is of the utmoſt ſervice. It is likewiſe beneficial in inflammations of the liver and ſpleen, and often in the gout and rheumatiſm. In all diſeaſes where bleeding is neceſſary, a ſpontaneous diſcharge of blood from the noſe is of much more ſervice than the ſame quantity let with the lancet. Whenever bleeding at the noſe relieves any bad ſymptom, and does not proceed ſo far as to endanger the patient's life, it ought not to be ſtopped. But, when it returns frequently, or continues till the pulſe becomes low, the extremities begin to grow cold, the lips pale, or the patient complains of being ſick and faint, it muſt immediately be ſtopped.

CURE.—Let the patient be ſet nearly upright, with his head reclining a little, and his legs immerſed in water about the warmth of new milk. His hands ought likewiſe to be put in lukewarm water, and his garters may be tied a little tighter than uſual. Ligatures may be applied to the arms, about the place where they are uſually made for bleeding, and with nearly the ſame degree of tightneſs. Theſe muſt be gradually ſlackened as the blood begins to ſtop, and removed entirely as ſoon as it gives over. Sometimes dry lint put up the noſtrils will ſtop the bleeding. When this does not ſucceed, doſſils of lint dipped in ſtrong ſpirits of wine may be put up the noſtrils; or, if that cannot be had, they may be dipped in

brandy. If the genitals be immerſed for ſome time in cold water, it will generally ſtop a bleeding at the noſe. I have ſeldom known this fail.

Of the BLEEDING and BLIND PILES.

A DISCHARGE of blood from the hæmorrhoidal veſſels is called the *bleeding piles.* When the veſſels only ſwell, and diſcharge no blood, but are exceeding painful, the diſeaſe is called the *blind piles.* This diſcharge, however, is not always to be treated as a diſeaſe. It is even more ſalutary than bleeding at the noſe, and often prevents or carries off diſeaſes. It is peculiarly beneficial in the gout, rheumatiſm, aſthma, and hypochondriacal complaints; and often proves critical in cholics and inflammatory fevers.

CURE.—In the management of the patient, regard muſt be had to his habit of body, his age, ſtrength, and manner of living. A diſcharge, which might be exceſſive and prove hurtful to one, may be very moderate, and even ſalutary, to another. That only is to be eſteemed dangerous which continues too long, and in ſuch quantity as to waſte the patient's ſtrength, hurt the digeſtion, nutrition, and other functions neceſſary to life. The Peruvian bark is proper in this caſe, both as a ſtrengthener and aſtringent. Half a dram of it may be taken in a glaſs of red wine, ſharpened with a few drops of the elixir of vitriol, three or four times a-day. The bleeding piles are ſometimes periodical, and return regularly once a-month, or once in three weeks. In this caſe they are always to be conſidered as a ſalutary diſcharge, and by no means to be ſtopped. In the *blind piles*, bleeding is generally of uſe. The diet muſt be light and thin, and the drink cool and diluting. It is likewiſe neceſſary that the body be kept gently open. When the piles are exceeding painful and ſwelled, but diſcharge nothing, the patient muſt ſit over the ſteam of warm water. He may likewiſe apply a linen cloth dipped in warm ſpirits of wine to the part, or poultices made of bread and milk, or of leeks fried with butter. If theſe do not produce a diſcharge, and the piles appear large, leeches muſt be applied as near them as poſſible, or, if they will fix upon the piles themſelves, ſo much the better. When leeches will not fix, the piles may be opened with a lancet. The operation is very eaſy, and is attended with no danger. When the pain is very great, a liniment made of two ounces of emollient ointment, and half an ounce of liquid laudanum, beat up with the yolk of an egg, may be applied.

SPITTING of BLOOD.

PERSONS of a ſlender make and lax fibre, who have long necks and ſtrait breaſts, are moſt liable to this diſeaſe. It is moſt common in the ſpring, and generally attacks people before they arrive at the prime or middle period of life. It

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is a common obſervation, that thoſe who have been ſubject to bleeding at the noſe when young are afterwards moſt liable to this complaint. It is often occaſioned by exceſſive drinking, running, wreſtling, ſinging, or ſpeaking aloud. Such as have weak lungs ought to avoid all violent exertions of that organ, as they value life. They ſhould likewiſe guard againſt violent paſſions, exceſſive drinking, and every thing that occaſions a rapid circulation of the blood. It is often the effect of a long and violent cough; in which caſe it is generally the forerunner of a conſumption. Spitting of blood is not always to be conſidered as a primary diſeaſe. It is often only a ſymptom, and in ſome diſeaſes not an unfavourable one. This is the caſe in pleuriſies, peripneumonies, and ſundry other fevers. In a dropſy, ſcurvy, or conſumption, it is a bad ſymptom, and ſhows that the lungs are ulcerated.

CURE.—This, like the other involuntary diſcharges of blood, ought not to be ſuddenly ſtopped by aſtringent medicines. it may however proceed ſo far as to weaken the patient, and even endanger his life, in which caſe proper means muſt be uſed for reſtraining it. The body ſhould be kept gently open by laxative diet, as roaſted apples, ſtewed prunes, and ſuch like. If theſe ſhould not have the deſired effect, a tea-ſpoonful of the lenitive electuary may be taken twice or thrice a-day, as is found neceſſary. If the bleeding proves violent, ligatures may be applied to the extremities, as directed for a bleeding at the noſe. If the patient be hot or feveriſh, bleeding and ſmall doſes of nitre will be of uſe; a ſcruple or half a dram of nitre may be taken in a cup of his ordinary drink twice or thrice a-day. If ſtronger aſtringents be neceſſary, fifteen or twenty drops of the acid elixir of vitriol may be given in a glaſs of water three or four times a-day.

VOMITING OF BLOOD.

THIS diſeaſe often proceeds from an obſtruction of the menſes in women, and ſometimes from the ſtopping of the hæmorrhoidal flux in men. It may be occaſioned by any thing that greatly ſtimulates or wounds the ſtomach, as ſtrong vomits or purges, acrid poiſons, ſharp or hard ſubſtances taken into the ſtomach, &c. It is often the effect of obſtructions in the liver, the ſpleen, or ſome of the other viſcera. It may likewiſe proceed from external violence, as blows or bruiſes, or from any of the cauſes which produce inflammation. In hyſteric women, vomiting of blood is very common, but by no means a dangerous ſymptom.

CURE.—A great part of the danger in this diſeaſe ariſes from the extravaſated blood lodged in the bowels, and becoming putrid, by which means a dyſentery or putrid fever may be occaſioned. The beſt way of preventing this, is to keep the body gently open, by frequently exhibiting emollient clyſters. After the diſcharge is over, as the patient is generally troubled with gripes, occaſioned by the acrimony of the blood lodged in the inteſtines, gentle purges will be neceſſary.

Of BLOODY URINE.

THIS diſcharge is more or leſs dangerous, according to the different circumſtances which attend it. When pure blood is voided ſuddenly, without interruption and without pain, it proceeds from the kidneys; but if the blood be in ſmall quantity, of a dark colour, and emitted with heat and pain about the bottom of the belly, it proceeds from the bladder. Bloody urine is always attended with ſome degree of danger; but it is peculiarly ſo when mixed with purulent matter, as this ſhows an ulcer ſomewhere in the urinary paſſages.

CURE.—When there is reaſon to ſuſpect an ulcer in the kidneys or bladder, the patient's diet muſt be cool, and his drink of a ſoft, healing, balſamic, quality, as decoctions of marſh-mallow roots with liquorice, ſolutions of gum-arabic, &c. Three ounces of marſh-mallow roots, and half an ounce of liquorice, may be boiled in two Engliſh quarts of water to one; two ounces of gum-arabic, and half an ounce of purified nitre, may be diſſolved in the ſtrained liquor, and a tea-cupful of it taken four or five times a-day. The early uſe of aſtringents in this diſeaſe has often bad conſequences. When the flux is ſtopped too ſoon, the grumous blood, by being confined in the veſſels, may produce inflammations, abceſſes, and ulcers. If however the caſe be urgent, or the patient ſeems to ſuffer from the loſs of blood, gentle aſtringents may be neceſſary. In this caſe the patient may take three or four ounces of lime-water, with half an ounce of the tincture of Peruvian bark, three times a-day.

Of the DYSENTERY, or BLOODY FLUX.

THIS diſeaſe is known by the flux of the belly, attended with violent pain of the bowels, a conſtant inclination to go to ſtool, and generally more or leſs blood in the ſtools. It begins, like other fevers, with chillneſs, loſs of ſtrength, a quick pulſe, great thirſt, and an inclination to vomit. The ſtools are at firſt greaſy or frothy, afterwards they are ſtreaked with blood, and, at laſt, have frequently the appearance of pure blood, mixed with ſmall filaments, reſembling bits of ſkin.

CURE.—Nothing is of more importance in this diſeaſe than cleanlineſs. It contributes greatly to the recovery of the patient, and no leſs to the ſafety of ſuch as attend him. Every thing about the patient ſhould be frequently changed. The excrements ſhould never be ſuffered to continue in his chamber, but removed immediately, and buried under ground. A conſtant ſtream of freſh air ſhould be admitted into the chamber; and it ought frequently to be ſprinkled with vinegar, juice of lemon, or ſome other ſtrong acid. At the beginning of this diſeaſe it is always neceſſary to cleanſe the firſt paſſages; for this purpoſe a vomit of ipecacuanha muſt be given, and worked off with weak camomile tea. Strong

vomits are ſeldom neceſſary here; a ſcruple, or at moſt half a dram, of ipecacuanha, is generally ſufficient for an adult, and ſometimes a very few grains will ſuffice. The day after the vomit, half a dram, or two ſcruples, of rhubarb, muſt be taken; or, what will anſwer the purpoſe rather better, an ounce or an ounce and a half of Epſom ſalts; this doſe may be repeated every other day for two or three times. Afterwards ſmall doſes of ipecacuanha may be taken for ſome time; two or three grains of the powder may be mixed in a table-ſpoonful of the ſyrup of poppies, and taken three times a-day. Theſe evacuations will often be ſufficient to effect a cure. Should it happen otherwiſe, the following aſtringent medicines may be uſed: A clyſter of ſtarch or fat mutton broth, with thirty or forty drops of liquid laudanum in it, may be adminiſtered twice a-day; at the ſame time an ounce of gum-arabic, and half an ounce of gum-tragacanth, may be diſſolved in an Engliſh pint of barley-water, over a ſlow fire, and a table-ſpoonful of it taken every hour. When dyſenteries prevail, we would recommend a ſtrict attention to cleanlineſs, a ſpare uſe of animal food, and the free uſe of ſound ripe fruits and other vegetables. We would alſo adviſe ſuch as are liable to them to take either a vomit or a purge every ſpring or autumn, as a preventive.

Of the JAUNDICE.

THE immediate cauſe of the jaundice is an obſtruction of the bile. The patient at firſt complains of exceſſive wearineſs, and has great averſion to every kind of motion. His ſkin is dry, and he generally feels a kind of itching or pricking pain over the whole body. If the patient be young, and the diſeaſe complicated with no other malady, it is ſeldom dangerous; but in old people, where it continues long, returns frequently, or is complicated with the dropſy or hypochondriac ſymptoms, it generally proves fatal. The black jaundice is more dangerous than the yellow.

CURE.—The patient ſhould take as much exerciſe as he can bear, either on horſeback, or in a carriage; walking, running, and even jumping, are likewiſe proper, provided he can bear them without pain, and there be no ſymptoms of inflammation. Patients have been often cured of this diſeaſe by a long journey, after medicines had proved ineffectual. If the patient be young, of a full ſanguine habit, and complains of pain in the right ſide about the region of the liver, bleeding will be neceſſary. After this a vomit muſt be adminiſtered, and, if the diſeaſe proves obſtinate, it may be repeated once or twice. No medicines are more beneficial in the jaundice than vomits, eſpecially where it is not attended with inflammation; half a dram of ipecacuanha in powder will be a ſufficient doſe for an adult; it may be worked off with weak camomile-tea, or lukewarm water. Fomenting the parts about the region of the ſtomach and liver, and rubbing

rubbing them with a warm hand or flesh-brush, are likewise beneficial; but it is still more so for the patient to sit in a bath of warm water up to the breast. He ought to do this frequently, and should continue in it as long as his strength will permit. Numberless British herbs are certain cures for this disease, as may be seen in the Herbal. I have known considerable benefit, in a very obstinate jaundice, from a decoction of hempseed: four ounces of the seed may be boiled in two English quarts of ale, and sweetened with coarse sugar; the dose half a pint every morning, and may be continued for eight or nine days. A very obstinate jaundice has been cured by swallowing raw eggs. Persons subject to the jaundice ought to take as much exercise as possible, and to avoid all heating and astringent aliments. If it attacks maidens after the age of puberty, marriage is a certain cure.

Of the DROPSY.

THE dropsy is often owing to an hereditary dispositon, and often to a jaundice badly cured; it may likewise proceed from drinking ardent spirits, or other strong liquors. It is true almost to a proverb, that great drinkers die of a dropsy. The want of exercise is also a very common cause of the dropsy; hence it is justly reckoned among the diseases of the sedentary. It often proceeds from excessive evacuations, as frequent and copious bleedings, strong purges often repeated, frequent salivations, &c. The sudden stoppage of customary or necessary evacuations, as the menses, the hæmorrhoids, fluxes of the belly, and, in short, whatever obstructs the perspiration, or prevents the blood from being duly prepared, occasions a dropsy. It generally begins with a swelling of the feet and ankles towards night, which, for some time, disappears in the morning. In the evening the parts, if pressed with the finger, will pit. The swelling gradually ascends, and occupies the trunk of the body, the arms, and the head. Afterwards the breathing becomes difficult, the urine is in small quantity, and the thirst great; the body is bound, and the perspiration is greatly obstructed. To these succeed torpor, heaviness, a slow wasting fever, and a troublesome cough. This last is generally a fatal symptom, as it shows that the lungs are affected. When the disease comes suddenly on, and the patient is young and strong, there is reason to hope for a cure, especially if medicine be given early. But, if the patient be old, has led an irregular or a sedentary life, or if there be reason to suspect that the liver, lungs, or any of the viscera, are unsound, there is great ground to fear that the consequences will prove fatal.

CURE.—The patient must abstain, as much as possible, from all drink, especially weak and watery liquors, and must quench his thirst with mustard-whey, or acids, as juice of lemons, oranges, sorrel, or such like. His aliment ought to be dry, of a stimulating and diuretic quality, as toasted bread, the flesh of birds, or

other

other wild animals, roaſted: pungent and aromatic vegetables, as garlic, muſtard, onions, creſſes, horſe-radiſh, rocambole, ſhalot, &c. He may alſo eat ſea-biſcuit dipt in wine or a little brandy. This is not only nouriſhing, but tends to quench thirſt. Some have been actually cured of a dropſy by a total abſtinence from all liquids, and living entirely upon ſuch things as are mentioned above. If the patient muſt have drink, the Spa water, or Rheniſh wine, with diuretic medicines infuſed in it, are the beſt. Exerciſe is of the greateſt importance in a dropſy. If the patient be able to walk, dig, or the like, he ought to continue theſe exerciſes as long as he can. If he is not able to walk or labour, he muſt ride on horſeback, or in a carriage, and the more violent the motion ſo much the better, provided he can bear it. If the diſeaſe has come on ſuddenly, it may generally be removed by ſtrong vomits, briſk purges, and ſuch medicines as promote a diſcharge by ſweat and urine. For an adult, half a dram of ipecacuanha in powder, and half an ounce of oxymel of ſquills, will be a proper vomit. This may be repeated as often as is found neceſſary, three or four days intervening between the doſes. The patient muſt not drink much after taking the vomit, otherwiſe he deſtroys its effect. A cup or two of camomile-tea will be ſufficient to work it off. Betwixt each vomit, on one of the intermediate days, the patient may take the following purge: Jalap in powder half a dram, cream of tartar two drams, calomel ſix grains. Theſe may be made into a bolus with a little ſyrup of pale roſes, and taken early in the morning. The leſs the patient drinks after it the better. If he be much griped, he may take now and then a cup of chicken-broth. The patient may likewiſe take every night at bed-time the following bolus: To four or five grains of camphor add one grain of opium, and as much ſyrup of orange-peel as is ſufficient to make them into a bolus. This will generally promote a gentle ſweat, which ſhould be encouraged by drinking now and then a ſmall cup of white-wine whey, with a tea-ſpoonful of the ſpirits of hartſhorn in it. A tea-cupful of the following diuretic infuſion may likewiſe be taken every four or five hours through the day: Take juniper berries, muſtard-ſeed, and horſe-radiſh, of each half an ounce; aſhes of broom half a pound; infuſe them in a quart of Rheniſh wine or ſtrong ale for a few days, and afterwards ſtrain off the liquor. Such as cannot take this infuſion, may uſe the decoction of ſeneka-root, which is both diuretic and ſudorific. I have known an obſtinate *anaſarca* cured by an infuſion of the aſhes of broom in wine. The above courſe will often cure an incidental dropſy, if the conſtitution be good; but, when the diſeaſe proceeds from a bad habit, or an unſound ſtate of the viſcera, ſtrong purges and vomits are not to be ventured upon. In this caſe, the ſafer courſe is to palliate the ſymptoms by the uſe of ſuch medicines as promote the ſecretions, and to ſupport the patient's ſtrength by warm and nouriſhing cordials. The ſecretion of urine

urine may be greatly promoted by nitre. Brookes ſays, he knew a young woman who was cured of a dropſy by taking a dram of nitre every morning in a draught of ale, after ſhe had been given over as incurable; and a large ſpoonful of unbruiſed muſtard-ſeed taken every night and morning, and drinking half a pint of the decoction of the tops of green broom after it, has performed cures when other powerful medicines have proved ineffectual. When the diſeaſe does not evidently and ſpeedily give way to purgative and diuretic medicines, the water ought to be let off by tapping. This is a very ſimple and ſafe operation, and would often ſucceed if it were performed in due time; but, if it be delayed till the humours are vitiated, or the bowels ſpoiled by long ſoaking in water, it can hardly be expected that any permanent relief will be procured. After the evacuation of the water, the patient is to be put on a courſe of ſtrengthening medicines; as the Peruvian bark, the elixir of vitriol, warm aromatics, with a due proportion of rhubarb infuſed in wine, and ſuch like.

Of the GOUT.

THERE is no diſeaſe which ſhows the imperfection of medicine, or ſets the advantages of temperance and exerciſe in a ſtronger light, than the gout. Exceſs and idleneſs are the true ſources from whence it originally ſprang, and all who would avoid it muſt be active and temperate. As there are no medicines yet known that will cure the gout, we ſhall confine our obſervations chiefly to regimen, both in and out of the fit. In the fit, if the patient be young and ſtrong, his diet ought to be thin and cooling, and his drink of a diluting nature; but, where the conſtitution is weak, and the patient has been accuſtomed to live high, this is not a proper time to retrench. In this caſe he muſt be kept nearly to his uſual diet, and ſhould take frequently a cup of ſtrong negus, or a glaſs of generous wine. Wine-whey is a very proper drink in this caſe, as it promotes the perſpiration without greatly heating the patient. It will anſwer this purpoſe better if a tea-ſpoonful of *ſal volatile oleoſum* or ſpirits of hartſhorn, be put into a cup of it twice a-day. It will likewiſe be proper to give at bed-time a tea-ſpoonful of the volatile tincture of *guaiacum* in a large draught of warm wine-whey. This will greatly promote perſpiration through the night. As the moſt ſafe and efficacious method of diſcharging the gouty matter is by perſpiration, this ought to be kept up by all means, eſpecially in the affected part. For this purpoſe the leg and foot ſhould be wrapped in ſoft flannel, fur, or wool. The laſt is moſt readily obtained, and ſeems to anſwer the purpoſe better than any thing elſe. The people of Lancaſhire look upon wool as a kind of ſpecific in the gout. They wrap a great quantity of it about the leg and foot affected, and cover it with a ſkin of ſoft dreſſed leather. The wool which they uſe is generally greaſed, and

carded or combed. They chuſe the ſofteſt which can be had, and ſeldom or never remove it till the fit be entirely gone off. All external applications that repel the matter are to be avoided as death. They do not cure the diſeaſe, but remove it from a ſafer to a more dangerous part of the body, where it often proves fatal. Many things will ſhorten a fit of the gout, and ſome will drive it off altogether; but nothing has yet been found which will do this with ſafety to the patient. In pain we eagerly graſp at any thing that promiſes immediate eaſe, and even hazard life itſelf for a temporary relief. This is the true reaſon why ſo many infallible remedies have been propoſed for the gout, and why ſuch numbers have loſt their lives by the uſe of them. It would be as imprudent to ſtop the ſmall-pox from riſing, and to drive it into the blood, as to attempt to repel the gouty matter after it has been thrown upon the extremities. The latter is as much an effort of nature to free herſelf from an offending cauſe as the former, and ought equally to be promoted. When the pain however is very great, and the patient is reſtleſs, thirty or forty drops of laudanum, more or leſs, according to the violence of the ſymptoms, may be taken at bed-time. This will eaſe the pain, procure reſt, promote perſpiration, and forward the criſis of the diſeaſe. Though it may be dangerous to ſtop a fit of the gout by medicine, yet if the conſtitution can be ſo changed by diet and exerciſe, as to leſſen or totally to prevent its return, there certainly can be no danger in following ſuch a courſe. It is well known that the whole habit may be ſo altered by a proper regimen, as nearly to eradicate this diſeaſe; and thoſe only who have ſufficient reſolution to perſiſt in ſuch a courſe, have reaſon to expect a cure. The courſe which we would recommend for preventing the gout, is as follows: in the firſt place, univerſal temperance; in the next place, ſufficient exerciſe. By this we do not mean ſauntering about in an indolent manner; but labour, ſweat, and toil. Theſe only can render the humours wholeſome, and keep them ſo. Going early to bed, and riſing betimes, are alſo of great importance. When the gout attacks the head or lungs, every method muſt be taken to fix it in the feet. They muſt be frequently bathed in warm water, and acrid cataplaſms applied to the ſoles. Bliſters ought likewiſe to be applied to the ankles or calves of the legs. Bleeding in the feet or ankles is alſo neceſſary, and warm ſtomachic purges. The patient ought to keep in bed for the moſt part, if there be any ſigns of inflammation, and ſhould be very careful not to catch cold. If it attacks the ſtomach with a ſenſe of cold, the moſt warm cordials are neceſſary; as ſtrong wine boiled up with cinnamon or other ſpices, cinnamon-water, peppermint-water, and even brandy or rum. The patient ſhould keep his bed, and endeavour to promote a ſweat by drinking warm liquors; and, if he ſhould be troubled with nauſea, or inclination to vomit, he may drink camomile tea, or any thing that will make

him

him vomit freely. Thoſe who never had the gout, but who, from their conſtitution or manner of living, have reaſon to expect it, ought likewiſe to be very circumſpect with regard to its firſt approach. If the diſeaſe, by wrong conduct or improper medicines, be diverted from its proper courſe, the miſerable patient has a chance to be ever after tormented with head-achs, coughs, pains of the ſtomach and inteſtines; and to fall, at laſt, a victim to its attack upon ſome of the more noble parts.

Of the RHEUMATISM.

THE cauſes of a rheumatiſm are frequently the ſame as thoſe of an inflammatory fever; viz. an obſtructed perſpiration, the immoderate uſe of ſtrong liquors, and the like. Sudden changes of the weather, and all quick tranſitions from heat to cold, are very apt to occaſion the rheumatiſm. The acute rheumatiſm commonly begins with wearineſs, ſhivering, a quick pulſe, reſtleſſneſs, thirſt, and other ſymptoms of fever. Afterwards the patient complains of flying pains, which are increaſed by the leaſt motion. Theſe at length fix in the joints, which are often affected with ſwelling and inflammation. If blood be let in this diſeaſe, it has generally the ſame appearance as in the pleuriſy. In this kind of rheumatiſm the treatment of the patient is nearly the ſame as in an acute or inflammatory fever. If he be young and ſtrong, bleeding is neceſſary, which may be repeated according to the exigencies of the caſe. The body ought likewiſe to be kept open by emollient clyſters, or cool opening liquors; as decoctions of tamarinds, cream of tartar, whey, ſenna-tea, and the like. Warm-bathing, after proper evacuations, has often an exceeding good effect. The patient may be either put into a bath of warm-water, or have cloths wrung out of it applied to the part affected. Great care muſt be taken that he do not catch cold after bathing. The chronic rheumatiſm is ſeldom attended with any conſiderable degree of fever, and is generally confined to ſome particular part of the body, as the ſhoulders, the back, or the loins. There is ſeldom any inflammation or ſwelling in this caſe. Perſons in the decline of life are moſt ſubject to the chronic rheumatiſm. In ſuch patients it often proves extremely obſtinate, and ſometimes incurable. Though this diſeaſe may not ſeem to yield to medicines for ſome time, yet they ought to be perſiſted in. Perſons who are ſubject to frequent returns of the rheumatiſm, will often find their account in uſing medicines, whether they be immediately affected with the diſeaſe or not. The chronic rheumatiſm is ſimilar to the gout in this reſpect, that the moſt proper time for uſing medicines to extirpate it, is when the patient is moſt free from the diſorder. There are ſeveral of our plants pointed out in the Herbal which may be uſed with great advantage in the rheumatiſm. One of the beſt is the white muſtard; a table-ſpoonful of the ſeed of this plant may be taken twice or thrice a-day, in a glaſs of wa-

ter or ſmall wine. The water-trefoil is likewiſe of great uſe in this complaint; it may be infuſed in wine or ale, or drunk in form of tea. The ground-ivy, camomile, and ſeveral other bitters, are alſo beneficial, and may be uſed in the ſame manner. No benefit is however to be expected from theſe, unleſs they be taken for a conſiderable time. Excellent medicines are often deſpiſed in this diſeaſe, becauſe they do not perform an immediate cure; whereas nothing would be more certain than their effect, were they duly perſiſted in. Want of perſeverance in the uſe of medicines is one reaſon why chronic diſeaſes are ſo ſeldom cured. Cold bathing, eſpecially in ſalt water, often cures the rheumatiſm. We would alſo recommend riding on horſeback, and wearing flannel next the ſkin. Iſſues are likewiſe very proper, eſpecially in chronic caſes. If the pain affects the ſhoulders, an iſſue may be made in the arm; but, if it affects the loins, it ſhould be put in the leg or thigh.

Of the SCURVY.

THE ſcurvy is occaſioned by cold moiſt air; by the long uſe of ſalted or ſmoke-dried proviſions, or any kind of food that is hard of digeſtion, and affords little nouriſhment. It may alſo proceed from the ſuppreſſion of cuſtomary evacuations, as the menſes, the hæmorrhoidal flux, &c. It is ſometimes owing to an hereditary taint, in which caſe a very ſmall cauſe will excite the latent diſorder. Grief, fear, and other depreſſing paſſions, have a great tendency both to excite and aggravate this diſeaſe. The ſame obſervation holds with regard to neglect of cleanlineſs, bad clothing, the want of proper exerciſe, confined air, unwholeſome food, or any diſeaſe which greatly weakens the body or vitiates the humours.

CURE.—There is no way of curing this diſeaſe ſo effectually, as by purſuing a plan directly oppoſite to that which brings it on. It proceeds from a vitiated ſtate of the humours, occaſioned by errors in diet, air, or exerciſe; and this cannot be removed but by a proper attention to theſe important articles. When the ſcurvy has been brought on by a long uſe of ſalted proviſions, the proper medicine is a diet conſiſting chiefly of freſh vegetables; as oranges, apples, lemons, limes, tamarinds, water-creſſes, ſcurvy-graſs, brook-lime, &c. The uſe of theſe, with milk, pot-herbs, new bread, and freſh beer or cider, will ſeldom fail to remove a ſcurvy of this kind, if taken before it be too far advanced; but to have this effect, they muſt be perſiſted in for a conſiderable time. I have often ſeen very extraordinary effects in the land-ſcurvy from a milk diet. This preparation of nature is a mixture of animal and vegetable properties, which of all others is the moſt fit for reſtoring a decayed conſtitution, and removing that particular acrimony of the humours, which ſeems to conſtitute the very eſſence of the ſcurvy, and many other diſeaſes. But people deſpiſe this wholeſome and nouriſhing food, becauſe it is cheap, and devour with

with greedineſs fleſh and fermented liquors, while milk is only deemed fit for their hogs. The moſt proper drink in the ſcurvy is whey or butter-milk. When theſe cannot be had, ſound cider, perry, or ſpruce beer, may be uſed. Wort has likewiſe been found to be a proper drink in the ſcurvy, and may be uſed at ſea, as malt will keep during the longeſt voyage. A decoction of the tops of the ſpruce fir is likewiſe proper; it may be drunk in the quantity of an Engliſh pint twice a day. Tar-water may be uſed for the ſame purpoſe, or decoctions of any of the mild mucilaginous vegetables; ſarſaparilla, marſh-mallow-roots, &c. Infuſions of the bitter plants, as ground-ivy, the ſmaller centaury, marſh-trefoil, &c. are likewiſe beneficial. The peaſants, in ſome parts of Britain, expreſs the juice of the laſt-mentioned plant, and drink it with good effect in thoſe foul ſcorbutic eruptions with which they are often troubled in the ſpring ſeaſon.

Of the SCROPHULA, or KING's EVIL.

THIS diſeaſe proceeds often from an hereditary taint, from a ſcrophulous nurſe, &c. Children who have the misfortune to be born of ſickly parents, whoſe conſtitutions have been greatly injured by chronic diſeaſes, are apt to be affected with the ſcrophula. It may likewiſe proceed from ſuch diſeaſes as weaken the habit or vitiate the humours, as the ſmall-pox, meaſles, &c. At firſt ſmall knots appear under the chin or behind the ears, which gradually increaſe in number and ſize, till they form one large hard tumour. This often continues for a long time without breaking; and, when it does break, it only diſcharges a thin watery humour. Other parts of the body are likewiſe liable to its attack, as the armpits, groins, feet, hand, eyes, breaſt, &c. The white ſwellings of the joints ſeem likewiſe to be of this kind. They are with difficulty brought to a ſuppuration; and, when opened, they only diſcharge a thin ichor. There is not a more general ſymptom of the ſcrophula than a ſwelling of the upper lip and noſe.

CURE.—In this complaint medicine is but of little uſe. It has been found, that keeping the body gently open, for ſome time, with ſea-water, has a good effect. Bathing in ſalt water, and drinking it in ſuch quantities as to keep the body gently open, will cure a ſcrophula, when medicines have been tried in vain. When ſalt water cannot be obtained, the patient may be bathed in freſh water, and his body kept open by ſmall quantities of ſalt and water, or ſome other mild purgative. Next to cold bathing, and drinking the ſalt water, we would recommend the Peruvian bark. The cold bath may be uſed in ſummer, and the bark in winter. To an adult half a dram of the bark in powder may be given, in a glaſs of red-wine, four or five times a-day. Hemlock may ſometimes be uſed with advantage in the ſcrophula. Some lay it down as a general rule, that the ſea-water is moſt

proper before there is any ſuppuration or ſymptoms of tabes; the Peruvian bark, when there are running ſores, and a degree of hectic fever; and the hemlock in old inveterate caſes, approaching to the ſcirrhous or cancerous ſtate. Either the extract or the freſh juice of this plant may be uſed. The doſe muſt be ſmall at firſt, and increaſed gradually as far as the ſtomach is able to bear it.

Of the ITCH.

THE itch is ſeldom a dangerous diſeaſe, unleſs when it is rendered ſo by neglect or improper treatment. If it be ſuffered to continue too long, it may vitiate the whole maſs of humours; and, if it be ſuddenly thrown in, without proper evacuations, it may occaſion fevers, inflammations of the viſcera, or other internal diſorders.

CURE.—The beſt medicine yet known for the itch is ſulphur, which ought to be uſed both externally and internally. The parts moſt affected may be rubbed with an ointment made of the flour of ſulphur, two ounces; crude ſal ammoniac, finely powdered, two drams; hog's-lard, or butter, four ounces. If a ſcruple or half a dram of the eſſence of lemon be added, it will entirely take away the diſagreeable ſmell. About the bulk of a nutmeg of this may be rubbed upon the extremities, at bed-time, twice or thrice a-week. It is ſeldom neceſſary to rub the whole body; but, when it is, it ought not to be done all at once, but by turns, as it is dangerous to ſtop too many pores at the ſame time. Before the patient begins to uſe the ointment, he ought, if he be of a full habit, to bleed or take a purge or two. It will likewiſe be proper, during the uſe of it, to take every night and morning as much of the flour of brimſtone and cream of tartar, in a little treacle or new milk, as will keep the body gently open. I never knew brimſtone, when uſed as directed above, fail to cure the itch; and I have reaſon to believe, that, if duly perſiſted in, it never will fail; but, if it be only uſed once or twice, and cleanlineſs is neglected, it is no wonder if the diſorder returns. The quantity of ointment mentioned above will generally be ſufficient for the cure of one perſon; but, if any ſymptoms of the diſeaſe ſhould appear again, the medicine may be repeated. It is both more ſafe and efficacious when perſiſted in for a conſiderable time, than when a large quantity is applied at once. As moſt people diſlike the ſmell of ſulphur, they may uſe, in its place, the powder of white hellebore root made up into an ointment, in the ſame manner, which will ſeldom fail to cure the itch. People ought to be extremely cautious leſt they take other eruptions for the itch; as the ſtoppage of theſe may be attended with fatal conſequences. Many of the eruptive diſorders to which children are liable have a near reſemblance to this diſeaſe; and I have often known infants killed by being rubbed with greaſy ointments, that made theſe eruptions ſtrike ſuddenly in, which nature had thrown out to preſerve the patient's life, or prevent ſome other malady.

Of

Of the ASTHMA.

The aſthma is a diſeaſe of the lungs, which ſeldom admits of a cure. Perſons in the decline of life are moſt liable to it. It is diſtinguiſhed into the moiſt and dry, or humoral and nervous. The former is attended with expectoration or ſpitting; but in the latter the patient ſeldom ſpits, unleſs ſometimes a little tough phlegm by the mere force of coughing. An aſthma is known by a quick laborious breathing, which is generally performed with a kind of wheezing noiſe. Sometimes the difficulty of breathing is ſo great, that the patient is obliged to keep in an erect poſture, otherwiſe he is in danger of being ſuffocated. A fit or paroxyſm of the aſthma generally happens after a perſon has been expoſed to cold eaſterly winds, or has been abroad in thick foggy weather, or has got wet, or continued long in a damp place under ground, &c.

CURE.—All windy food, and whatever is apt to ſwell in the ſtomach, is to be avoided. Strong liquors of all kinds, eſpecially malt liquor, are hurtful. The patient ſhould eat a very light ſupper, or rather none at all, and ſhould never ſuffer himſelf to be long coſtive. His clothing ſhould be warm, eſpecially in the winter-ſeaſon. As all diſorders of the breaſt are much relieved by keeping the feet warm, and promoting the perſpiration, a flannel ſhirt or waiſtcoat, and thick ſhoes, will be of ſingular ſervice. But nothing is of ſo great importance in the aſthma, as pure and moderately warm air. Many aſthmatic perſons, who cannot live in Britain, enjoy very good health in the ſouth of France, Portugal, Spain, or Italy. Exerciſe is likewiſe of very great importance in the aſthma, as it promotes the digeſtion, preparation of the blood, &c. The blood of aſthmatic perſons is ſeldom duly prepared, owing to the proper action of the lungs being impeded. For this reaſon ſuch people ought daily to take as much exerciſe, either on foot, on horſeback, or in a carriage, as they can bear. Almoſt all that can be done by medicine in this diſeaſe, is to relieve the patient when ſeized with a violent fit. Bleeding, unleſs extreme weakneſs or old age ſhould forbid it, is highly proper. If there be a violent ſpaſm about the breaſt or ſtomach, warm fomentations, or bladders filled with warm milk and water, may be applied to the part affected, and warm cataplaſms to the ſoles of the feet. The patient muſt drink freely of diluting liquors, and may take a teaſpoon-full of the tincture of caſtor and of ſaffron mixed together, in a cup of valerian tea, twice or thrice a-day. Sometimes a vomit has a very good effect, and ſnatches the patient, as it were, from the jaws of death. This however, will be more ſafe after other evacuations have been premiſed. A very ſtrong infuſion of roaſted coffee is ſaid to give eaſe in an aſthmatic paroxyſm. In the moiſt aſthma, ſuch things as promote expectoration or ſpitting ought to be uſed; as the ſyrup of

ſquills,

ſquills, gum-ammoniac, and ſuch-like. A common ſpoonful of the ſyrup of oxymel of ſquills, mixed with an equal quantity of cinnamon-water, may be taken three or four times through the day; and four or five pills, made of equal parts of aſſafœtida and gum ammoniac, at bed-time. Large doſes of æther have been found very efficacious in removing a fit of the aſthma. For the convulſive or nervous aſthma, antiſpaſmodics and bracers are the moſt proper medicines. The patient may take a teaſpoon-full of the paregoric elixir twice a-day. The Peruvian bark is ſometimes found to be of uſe in this caſe. It may be taken in ſubſtance, or infuſed in wine. In ſhort, every thing that braces the nerves, or takes off ſpaſm, may be of uſe in a nervous aſthma. It is often removed by the uſe of aſſes' milk; I have likewiſe known cows' milk drunk warm in the morning have a good effect in this caſe. In every ſpecies of aſthma, ſetons and iſſues are of great ſervice; they may either be put in the back or ſide, and ſhould never be allowed to dry up. We ſhall here, once for all, obſerve, that not only in the aſthma, but in moſt chronic diſeaſes, iſſues are extremely proper. They are both a ſafe and an efficacious remedy; and, though they will not always cure the diſeaſe, yet they will often prolong the patient's life.

Of the APOPLEXY.

THE immediate cauſe of an apoplexy is a compreſſion of the brain, occaſioned by an exceſs of blood, or a collection of watery humours. The former is called a *ſanguine*, and the latter a *ſerous*, apoplexy. It may be occaſioned by any thing that increaſes the circulation towards the brain, or prevents the return of the blood from the head; intenſe ſtudy, violent paſſions, ſuppreſſion of urine, exceſs of venery, the ſudden ſtriking-in of any eruption, wounds or bruiſes on the head, long expoſure to exceſſive cold, poiſonous exhalations, &c.

CURE.—The uſual forerunners of an apoplexy are giddineſs, pain and ſwimming of the head, loſs of memory, drowſineſs, noiſe in the ears, the night-mare, a ſpontaneous flux of tears, and laborious reſpiration. When perſons have reaſon to fear the approach of a fit, they ſhould endeavour to prevent it by bleeding, a ſlender diet, and opening medicines. In the apoplexy, if the patient does not die ſuddenly, the countenance appears florid, the face is ſwelled or puffed up, and the blood-veſſels, eſpecially about the neck and temples, are turgid; the pulſe beats ſtrong, the eyes are prominent and fixed, and the breathing is difficult, and performed with a ſnorting noiſe. The excrements and urine are often voided ſpontaneouſly, and the patient is ſometimes ſeized with vomiting. In this ſtage, every method muſt be taken to leſſen the force of the circulation towards the head. The garters ſhould be tied pretty tight, by which means the motion of the blood from the lower extremities will be retarded. The patient ſhould be bled freely in the neck or arm; and,

if there be occaſion, the operation may be repeated in two or three hours. A laxative clyſter, with plenty of ſweet oil, or freſh butter, and a ſpoonful or two of common ſalt in it, may be adminiſtered every two hours; and bliſtering-plaſters applied betwixt the ſhoulders and to the calves of the legs. As ſoon as the ſymptoms are a little abated, and the patient is able to ſwallow, he ought to drink freely of ſome diluting opening liquors, as a decoction of tamarinds and liquorice, cream-tartar whey, or common whey with cream of tartar diſſolved in it. Or he may take any cooling purge, as Glauber's ſalts, manna diſſolved in an infuſion of ſenna, or the like. All ſpirits and other ſtrong liquors are to be avoided. Even volatile ſalts held to the noſe do miſchief. Vomits, for the ſame reaſon, ought not to be given, nor any thing that may increaſe the motion of the blood toward the head. When apoplectic ſymptoms proceed from opium, or other narcotic ſubſtances, taken into the ſtomach, vomits are neceſſary. The patient is generally relieved as ſoon as he has diſcharged the poiſon in this way.

Of the HEART-BURN.

WHAT is commonly called the heart-burn is not a diſeaſe of that organ, but an uneaſy ſenſation of heat or acrimony about the pit of the ſtomach, which is ſometimes attended with anxiety, nauſea, and vomiting. When the heart-burn proceeds from debility of the ſtomach or indigeſtion, the patient ought to take a doſe or two of rhubarb; afterwards he may uſe infuſions of the Peruvian bark, or any other of the ſtomachic bitters, in wine or brandy. Exerciſe in the open air will likewiſe be of uſe, and every thing that promotes digeſtion. When bilious humours occaſion the heart-burn, a tea-ſpoonful of the ſweet ſpirit of nitre in a glaſs of water, or a cup of tea, will generally give eaſe. If it proceeds from the uſe of greaſy aliments, a dram of brandy or rum may be taken. If acidity or ſourneſs of the ſtomach occaſions the heart-burn, abſorbents are the proper medicines. In this caſe, an ounce of powdered chalk, half an ounce of fine ſugar, and a quarter of an ounce of gum-arabic, may be mixed in an Engliſh quart of water, and a tea-cupful of it taken as often as is neceſſary. But the ſafeſt and beſt abſorbent is magneſia alba. This not only acts as an abſorbent, but likewiſe as a purgative; whereas chalk, and other abſorbents of that kind, are apt to lie in the inteſtines, and occaſion obſtructions. If wind be the cauſe of this complaint, the moſt proper medicines are thoſe called carminatives; as aniſeeds, juniper-berries, ginger, canella alba, cardamom-ſeeds, &c. Theſe may either be chewed, or infuſed in wine, brandy, or other ſpirits. I have frequently known the heart-burn cured, particularly in pregnant women, by chewing green tea.

Of NERVOUS DISEASES.

NERVOUS diſeaſes not only affect the body, but the mind likewiſe ſuffers, and is often thereby rendered extremely weak and peeviſh. The low ſpirits, timorouſneſs, melancholy, and fickleneſs of temper, which generally attend nervous diſorders, induce many to believe, that they are entirely diſeaſes of the mind; but this change of temper is rather a conſequence than the cauſe of the diſeaſe. Every thing that tends to relax or weaken the body diſpoſes it to nervous diſeaſes, as indolence, exceſſive venery, drinking too much tea, or other weak watery liquors, frequent bleeding, purging, vomiting, &c.

CURE.—Perſons afflicted with nervous diſeaſes ought never to faſt long. Their food ſhould be ſolid and nouriſhing, but of eaſy digeſtion. Fat meats, and high ſauces, are hurtful. All exceſs ſhould be carefully avoided. They ought never to eat more at a time than they can eaſily digeſt; but, if they feel themſelves weak and faint between meals, they ought to eat a bit of bread and drink a glaſs of wine. Heavy ſuppers are to be avoided. Though wine in exceſs enfeebles the body and impairs the faculties of the mind, yet, taken in moderation, it ſtrengthens the ſtomach, and promotes digeſtion. Exerciſe in nervous diſorders is ſuperior to all medicines. Even change of place, and the ſight of new objects, by diverting the mind, have a great tendency to remove theſe complaints. For this reaſon a long journey, or a voyage, is of much more advantage than riding ſhort journeys near home. Though nervous diſeaſes are ſeldom radically cured, yet their ſymptoms may ſometimes be alleviated, and the patient's life rendered at leaſt more comfortable, by proper medicines. When digeſtion is bad, or the ſtomach relaxed and weak, the following infuſion of Peruvian bark and other bitters may be uſed with advantage: Take of Peruvian bark an ounce; gentian-root, orange-peel, and coriander-ſeed, of each half an ounce; let theſe ingredients be all bruiſed in a mortar, and infuſed in a bottle of brandy or whiſky for the ſpace of five or ſix days. A table-ſpoonful of the ſtrained liquor may be taken in half a glaſs of water, an hour before breakfaſt, dinner, and ſupper. Few things tend more to ſtrengthen the nervous ſyſtem than cold bathing. This practice, if duly perſiſted in, will produce very extraordinary effects; but, when the liver or other viſcera are obſtructed or otherwiſe unſound, the cold bath is improper. It is therefore to be uſed with very great caution. The moſt proper ſeaſons for it are ſummer and autumn. It will be ſufficient, eſpecially for perſons of a ſpare habit, to go into the cold bath three or four times a-week. If the patient be weakened by it, or feels chilly for a long time after coming out, it is improper. Opiates are generally extolled in theſe maladies; but, as they only palliate the ſymptoms, and generally afterwards increaſe the diſeaſe, we would adviſe people to be extremely ſparing in the

the uſe of them, leſt habit render them at laſt abſolutely neceſſary. Whoever wiſhes for a thorough cure of this diſeaſe, ſhould pay the ſtricteſt attention to diet, air, exerciſe, and amuſement.

Of the PALSY.

THE palſy is a loſs or diminution of ſenſe or motion, or of both, in one or more parts of the body. Of all the affections called nervous, this is the moſt ſuddenly fatal. The immediate cauſe of the palſy is any thing that prevents the regular exertion of the nervous power upon any particular muſcle or part of the body. The occaſional and prediſpoſing cauſes are various, as drunkenneſs, wounds of the brain or ſpinal marrow, preſſure upon the brain or nerves, very cold or damp air, the ſuppreſſion of cuſtomary evacuations, ſudden fear, want of exerciſe, or whatever greatly relaxes the ſyſtem.

CURE.—In young perſons of a full habit, the palſy muſt be treated in the ſame manner as the apoplexy. The patient muſt be bled, bliſtered, and have his body opened by ſharp clyſters or purgative medicines. But, in old age, or when the diſeaſe proceeds from relaxation or debility, which is generally the caſe, a quite contrary courſe muſt be purſued. The diet muſt be warm and invigorating, ſeaſoned with ſpicy and aromatic vegetables, as muſtard, horſe-raddiſh, &c. The drink may be generous wine, muſtard-whey, or brandy and water. Friction with the fleſh-bruſh, or warm hand, is extremely proper, eſpecially on the parts affected. Bliſters may likewiſe be applied to the affected parts with advantage. One of the beſt external applications is electricity. The ſhocks ſhould be received on the part affected; and they ought daily to be repeated for ſeveral weeks. Vomits are very beneficial in this kind of palſy, and ought frequently to be adminiſtered. The wild valerian-root is a very proper medicine in this caſe. It may either be taken in an infuſion with ſage-leaves, or half a dram of it in powder may be given in a glaſs of wine three times a-day. If the patient cannot uſe the valerian, he may take of *ſal volatile oleoſum*, compound ſpirit of lavender, and tincture of caſtor, each half an ounce; mix theſe together, and take forty or fifty drops in a glaſs of wine three or four times a-day. A table-ſpoonful of muſtard-ſeed taken frequently, is a very good medicine. The patient ought likewiſe to chew cinnamon-bark, ginger, or other warm ſpiceries. Exerciſe is of the utmoſt importance in the palſy; but the patient muſt beware of cold, damp, and moiſt air. He ought to wear flannel next his ſkin; and, if poſſible, ſhould remove into a warmer climate.

Of the EPILEPSY, or FALLING SICKNESS.

THE epilepſy is a ſudden deprivation of all the ſenſes, wherein the patient falls ſuddenly down, and is affected with violent convulſive motions. It is ſometimes hereditary.

hereditary. It may likewiſe proceed from frights of the mother when with child; from blows, bruiſes, or wounds, on the head; a collection of water, blood, or ſerous humours, in the brain; a polypus, tumours, or concretions within the ſkull; exceſſive drinking, intenſe ſtudy, exceſs of venery, worms, teething, ſuppreſſion of cuſtomary evacuations, too great emptineſs or repletion; violent paſſions or affections of the mind, as fear, joy, &c. hyſteric affections, contagion received into the body, as the infection of the ſmall-pox, meaſles, &c. In an epileptic fit, the patient generally makes an unuſual noiſe; his thumbs are drawn in towards the palms of his hands, his eyes are diſtorted, he ſtarts and foams at the mouth, his extremities are bent or twiſted various ways, he often diſcharges his ſeed, urine, and fæces, involuntarily, and is quite deſtitute of all ſenſe and reaſon. After the fit is over, his ſenſes gradually return, and he complains of a kind of ſtupor, wearineſs, and pain of his head; but has no remembrance of what happened to him during the fit.

CURE.—If the patient be of a ſanguine temperament, and there be reaſon to fear an obſtruction of the brain, bleeding and other evacuations will be neceſſary. When the diſeaſe is occaſioned by the ſtoppage of cuſtomary evacuations, theſe, if poſſible, muſt be reſtored; if this cannot be done, others may be ſubſtituted in their place. Iſſues or ſetons, in this caſe, have often a very good effect. When there is reaſon to believe that the diſeaſe proceeds from worms, proper medicines muſt be uſed to kill, or carry off, theſe vermin. When the diſeaſe proceeds from teething, the body ſhould be kept open by emollient clyſters, the feet frequently bathed in warm-water, and, if the fits prove obſtinate, a bliſter may be put betwixt the ſhoulders. The ſame method is to be followed, when epileptic fits precede the eruption of the ſmall-pox, or meaſles, &c. The flowers of zinc have of late been highly extolled for the cure of the epilepſy. Though this medicine will not be found to anſwer the expectations which have been raiſed concerning it, yet in obſtinate epileptic caſes it deſerves a trial. The doſe is from one to three or four grains, which may be taken either in pills or a bolus, as the patient inclines. The beſt method is to begin with a ſingle grain four or five times a day, and gradually to increaſe the doſe as far as the patient can bear it. Muſk has ſometimes been found to ſucceed in the epilepſy. Ten or twelve grains of it, with the ſame quantity of factitious cinnabar, may be made up into a bolus, and taken every night and morning. Sometimes the epilepſy has been cured by electricity. Convulſion-fits proceed from the ſame cauſes, and muſt be treated in the ſame manner, as the epilepſy.

Of the HICCUP.

THE hiccup is a ſpaſmodic or convulſive affection of the ſtomach and midriff, ariſing from any cauſe that irritates their nervous fibres.

CURE.—When the hiccup proves very obſtinate, recourſe muſt be had to the moſt powerful aromatic and antiſpaſmodic medicines. The principal of theſe is muſk; fifteen or twenty grains of which may be made into a bolus, and repeated occaſionally. Opiates are likewiſe of ſervice; but they muſt be uſed with caution. A bit of ſugar dipped in compound ſpirits of lavender, or the volatile aromatic tincture, may be taken frequently. External applications are ſometimes alſo beneficial; as the ſtomach-plaſter, or a cataplaſm of the Venice treacle, applied to the region of the ſtomach.

CRAMP OF THE STOMACH.

THIS diſeaſe often ſeizes people ſuddenly, is very dangerous, and requires immediate aſſiſtance. It is moſt incident to perſons in the decline of life, eſpecially the nervous, gouty, hyſteric, and hypochondriac.

CURE.—Let the ſtomach be fomented with cloths dipped in warm water; or bladders filled with warm milk and water conſtantly applied to it. Theſe often produce the moſt happy effects. In very violent and laſting pains of the ſtomach, ſome blood ought to be let, unleſs the weakneſs of the patient forbids it. When the pain or cramp proceeds from a ſuppreſſion of the menſes, bleeding is of uſe. If it be owing to the gout, recourſe muſt be had to ſpirits, or ſome of the warm cordial waters. Bliſters ought likewiſe, in this caſe, to be applied to the ankles. Violent cramps and pains of the ſtomach are often removed by covering it with a large plaſter of Venice treacle.

OF THE NIGHT-MARE.

IN this diſeaſe, the patient, in time of ſleep, imagines he feels an uncommon oppreſſion or weight about the breaſt or ſtomach, which he can by no means ſhake off. He groans, and ſometimes cries out; though oftener he attempts to ſpeak, but in vain. Sometimes he imagines himſelf engaged with an enemy, and in danger of being killed; attempts to run away, but finds he cannot. Sometimes he fancies himſelf in a houſe that is on fire, or that he is in danger of being drowned in a river. He often thinks he is falling over a precipice, and the dread of being daſhed to pieces ſuddenly awakes him. This diſorder has been ſuppoſed to proceed from too much blood; from a ſtagnation of blood in the brain, lungs, &c. But it is rather a nervous affection, and ariſes chiefly from indigeſtion. Hence we find that perſons of weak nerves, who lead a ſedentary life, and live full, are moſt commonly afflicted with the night-mare. Nothing tends more to produce it than heavy ſuppers, eſpecially when eaten late, or the patient goes to bed ſoon after.

CURE.—As perſons afflicted with the night-mare generally moan or make ſome noiſe in the fit, they ſhould be waked or ſpoken to by ſuch as hear them, as the uneaſineſs generally goes off as ſoon as the patient is awake, or any one limb is moved; but there is oftentimes an univerſal laſſitude of the whole body left behind, which remains for ſome ſpace of time. Some ſay a dram of brandy taken at bed-time will prevent this diſeaſe. That, however, is a bad cuſtom, and, in time, loſes its effect. We would rather have the patient depend upon the uſe of food of eaſy digeſtion, cheerfulneſs, exerciſe through the day, and a light ſupper taken early, than to accuſtom himſelf to drams. A glaſs of peppermint water will often promote digeſtion as much as a glaſs of brandy, and is much ſafer. After a perſon of weak digeſtion, however, has eaten flatulent food, a dram may be neceſſary; in this caſe we would recommend it as the moſt proper medicine. Perſons who are young, and full of blood, if troubled with the night-mare, ought to take a purge frequently, and uſe a ſpare diet.

The night-mare was ſuppoſed by the ancients not to be any real diſorder of the body, but to be an effect, or ſenſation, derived from carnal contact in the night with ſome evil ſpirit or dæmon during the hours of ſleep. They contended, that perſons of a luſtful inclination, who, during the day, indulged in ſtrong deſires of copulation, and had dreams anſwerable thereto in the night, were frequently viſited by theſe evil ſpirits, whoſe buſineſs it was to watch for favourable opportunities of ſeducing the mind, already half alienated from virtue and chaſtity, to the utmoſt laſcivious imaginations, the better to complete their purpoſe of carnal indulgence and delight. When the weight and oppreſſion on the breaſt and ſtomach produced by this diſorder happened to females, it was called *incubus*, or a *male* monſter; and, when to males, it was called *ſuccubus*, or a *female* dæmon, which had contact with the man, ſimilar to the male monſter with the woman; and the laſſitude and fatigue left on the body by the diſeaſe were ſuppoſed to be the natural effect of this abominable copulation. Abſurd as was the doctrine, whole volumes have been written upon it; and in former days it opened a large field for prieſt-craft, and the ſeduction of ignorant unſuſpecting girls. How many reaſons have we to be thankful for the lights of the goſpel diſpenſed in our own tongue, and for the illuminations of the preſent æra!

Of FLATULENCIES, or WIND.

ALL nervous patients, without exception, are afflicted with wind or flatulencies in the ſtomach and bowels, which ariſe chiefly from the want of tone or vigour in theſe organs. Crude flatulent aliment, as green peaſe, beans, coleworts, cabbages, and ſuch-like, may increaſe this complaint; but ſtrong and healthy

healthy people are ſeldom troubled with wind, unleſs they either overload their ſtomachs, or drink liquors that are in a fermenting ſtate, and conſequently full of elaſtic air. While therefore the matter of flatulence proceeds from our aliment, the cauſe which makes air ſeparate from them in ſuch quantity as to occaſion complaints is almoſt always a fault of the bowels themſelves, which are too weak either to prevent the production of elaſtic air, or to expel it after it is produced.

CURE.—To relieve this complaint, ſuch medicines ought to be uſed as have a tendency to expel wind, and, by ſtregthening the alimentary canal, to prevent its being produced there. The liſt of medicines for expelling wind is very numerous; they often however diſappoint the expectations of both the phyſician and his patient. The moſt celebrated among the claſs of carminatives are juniper-berries; the roots of ginger and zedoary; the ſeeds of aniſe, carraway, and coriander; gum-aſſafœtida and opium; the warm waters, tinctures, and ſpirits, aromatic water, tincture of woodroof, volatile aromatic ſpirit, æther, &c. For ſtrengthening the ſtomach and bowels, and conſequently for leſſening the production of flatulence, the Peruvian bark, bitters, chalybeates, and exerciſe, are the beſt remedies.

Of HYSTERIC COMPLAINTS.

THESE belong to the numerous tribe of nervous diſeaſes, which may be juſtly reckoned the reproach of medicine. Women of a delicate habit, whoſe ſtomach and inteſtines are relaxed, and whoſe nervous ſyſtem is extremely ſenſible, are moſt ſubject to hyſteric complaints. In ſuch perſons an hyſteric-fit, as it is called, may be brought on by an irritation of the nerves of the ſtomach or inteſtines, by wind, acrid humours, or the like. A ſudden ſuppreſſion of the menſes often gives riſe to hyſteric fits. They may likewiſe be excited by violent paſſions or affections of the mind, as fear, grief, anger, or great diſappointments.

CURE.—The radical cure of this diſorder will be beſt attempted at a time when the patient is moſt free from the fits. It will be greatly promoted by a proper attention to regimen. A milk and vegetable diet, duly perſiſted in, will often perform a cure. If, however, the patient has been accuſtomed to a more generous diet, it will not be ſafe to leave it off all at once, but by degrees. The moſt proper drink is water with a ſmall quantity of ſpirits. A cool dry air is the beſt. Cold bathing, and every thing that braces the nerves, and invigorates the ſyſtem, is beneficial: but lying too long in bed, or whatever relaxes the body, is hurtful. It is of the greaeſt importance to have the mind kept conſtantly eaſy and cheerful, and, if poſſible, to have it always engaged in ſome agreeable and intereſting purſuit. The proper medicines are thoſe which ſtrengthen the alimentary canal and the whole nervous ſyſtem, as the prepara-

tions of iron, the Peruvian bark, and other bitters. Twenty drops of the elixir of vitriol, in a cup of the infuſion of the bark, may be taken twice or thrice a-day. The chalybeate waters generally prove beneficial in this diſorder. Hyſteric women are often afflicted with cramps in various part of the body, which are moſt apt to ſeize them in bed, or when aſleep. The moſt efficacious medicines in this caſe are opium, bliſtering-plaſters, and warm bathing or fomentations. When the cramp or ſpaſm is very violent, opium is the remedy moſt to be depended on. Cramps are often prevented or cured by compreſſion. Thus cramps in the legs are prevented, and ſometimes removed, by tight bandages; and when convulſions ariſe from a flatulent diſtenſion of the inteſtines, or from ſpaſms beginning in them, they may be often leſſened or cured by making a pretty ſtrong compreſſion upon the abdomen by means of a broad belt. A roll of brimſtone held in the hand is frequently uſed as a remedy for cramps: though this ſeems to owe its effects chiefly to imagination, yet, as it ſometimes ſucceeds, it merits a trial. When ſpaſms or convulſive motions ariſe from ſharp humours in the ſtomach and inteſtines, no laſting relief can be procured till theſe are either corrected or expelled. The Peruvian bark has ſometimes cured periodic convulſions after other medicines have failed.

Of HYPOCHONDRIAC COMPLAINTS.

THESE generally attack the indolent, the luxurious, the unfortunate, and the ſtudious; and are daily increaſed by luxury and ſedentary employments. Men of a melancholy temperament, whoſe minds are capable of great attention, and whoſe paſſions are not eaſily moved, are, in the advanced periods of life, moſt liable to this diſeaſe. It is uſually brought on by long and ſerious attention to abſtruſe ſubjects, grief, the ſuppreſſion of cuſtomary evacuations, exceſs of venery, the repulſion of cutaneous eruptions, long-continued evacuations, obſtructions in ſome of the viſcera, as the liver, ſpleen, &c.

CURE.—Cheerfulneſs and ſerenity of mind are by all means to be cultivated. Exerciſe of every kind is uſeful. The cold bath is likewiſe beneficial; and, where it does not agree with the patient, friction with the fleſh-bruſh or a coarſe cloth may be tried. If the patient has it in his power, he ought to travel either by ſea or land. A voyage, or a long journey, eſpecially towards a warmer climate, will be of more ſervice than any medicine. The general intentions of cure, in this diſeaſe, are to ſtrengthen the alimentary canal, and to promote the ſecretions. Theſe intentions will be beſt anſwered by the different preparations of iron and the Peruvian bark, which, after proper evacuations, may be taken in the ſame manner as directed in the preceding diſeaſe.

Of a SCIRRHUS and CANCER.

A SCIRRHUS is a hard indolent tumour ſeated in ſome of the glands, as the breaſt, the arm-pits, &c. If the tumour become large, unequal, of a livid, blackiſh, or leaden, colour, and is attended with violent pain, it gets the name of an *occult cancer*. When the ſkin is broken, and a *ſanies* or ichorous matter of an abominable fœtid ſmell is diſcharged from the ſore, it is called an *open* or *ulcerated cancer*. Perſons after the age of forty-five, particularly women, and thoſe who lead an indolent ſedentary life, are moſt ſubject to this diſeaſe. A cancer is often owing to ſuppreſſed evacuations; hence it proves ſo frequently fatal to women of a groſs habit, particularly old maids and widows, about the time when the menſtrual flux ceaſes. It may alſo be occaſioned by the long-continued uſe of food that is too hard of digeſtion, or of an acrid nature; by barrenneſs, celibacy, indolence, cold, blows, friction, preſſure, or the like. Women often ſuffer from the laſt of theſe by means of their ſtays, which ſqueeze and compreſs their breaſts ſo as to occaſion great miſchief. This diſorder ſeems often very trifling at the beginning. A hard tumour about the ſize of a hazle-nut, or perhaps ſmaller, is generally the firſt ſymptom. This will often continue for a long time without ſeeming to increaſe, or giving the patient great uneaſineſs: but, if the conſtitution be hurt, or the tumour irritated by preſſure, or improper treatment of any kind, it begins to extend itſelf towards the neighbouring parts, by puſhing out a kind of roots or limbs. It then gets the name of *cancer*, from a fancied reſemblance between theſe limbs and the claws of a crab. The colour of the ſkin begins to change, which is firſt red, afterwards purple, then bluiſh, livid, and at laſt black. The patient complains of heat, with a burning, gnawing, ſhooting, pain. The tumour is very hard, rough, and unequal, with a protuberance, or riſing, in the middle; its ſize increaſes daily, and the neighbouring veins become thick, knotty, and of a blackiſh colour. The ſkin at length gives way, and a thin ſharp ichor begins to flow, which corrodes the neighbouring parts till it forms a large unſightly ulcer. More occult cancers ariſe, and communicate with the neighbouring glands. The pain and ſtench become intolerable; the appetite fails; the ſtrength is exhauſted by a continual hectic fever; at laſt, a violent hæmorrhage, or diſcharge of blood, from ſome part of the body, with faintings, or convulſion-fits, generally put an end to the miſerable patient's life.

CURE.—This is one of thoſe diſeaſes for which no certain remedy is yet known. Its progreſs however may ſometimes be retarded, and ſome of its moſt diſagreeable ſymptoms mitigated, by proper application. One misfortune attending the diſeaſe is, that the unhappy patient often conceals it too long. Were proper means uſed in due time, a cancer might often be cured; but, after the diſ-

order has arrived at a certain height, it generally ſets all medicine at defiance. When a ſcirrhous tumour is firſt diſcovered, the patient ought to obſerve a proper regimen, and to take twice or thrice a-week a doſe of common purging mercurial pills. Some blood may alſo be let, the part affected may be gently rubbed twice a-day with a little of the mercurial ointment, and kept warm with fur or flannel. The food muſt be light, and an Engliſh pint of the decoction of ſarſaparilla may be drunk daily. Should the tumour not yield to this treatment, but, on the contrary, become larger and harder, it will be proper to extirpate it either by the knife or cauſtic. Indeed, whenever this can be done with ſafety, the ſooner it is done the better. It can anſwer no purpoſe to extirpate a cancer after the conſtitution is ruined, or the whole maſs of humours corrupted, by it. This however is the common way, which makes the operation ſo ſeldom ſucceed. Few people will ſubmit to the extirpation till death ſtares them in the face; whereas, if it were done early, the patient's life would not be endangered by the operation, and it would generally prove a radical cure. The medicine moſt in repute for this diſeaſe is hemlock. Dr. Stork, phyſician at Vienna, has of late recommended the extract of this plant as very efficacious in cancers of every kind. The doctor ſays, he has given ſome hundred-weights of it without ever hurting any body, and often with manifeſt advantage. He adviſes the patient however to begin with very ſmall doſes, as two or three grains, and to increaſe the doſe gradually till ſome good effect be perceived, and there to reſt without further increaſe. From two or three grains at firſt, the doctor ſays he has increaſed the doſe to two, three, and four, drams a-day, and finds that ſuch doſes may be continued for ſeveral weeks without any bad conſequences. The doctor does not pretend to fix the time in which a cancer may be reſolved by the uſe of hemlock, but ſays he has given it for above two years in large doſes without any apparent benefit; nevertheleſs the patient has been cured by perſiſting in the uſe of it for half a year longer. This is at leaſt encouragement to give it a fair trial. The powder of hemlock is by ſome preferred to the extract. They are both made of the freſh leaves, and may be uſed nearly in the ſame manner. Dr. Nicholſon, of Berwick, ſays, he gradually increaſed the doſe of the powder from a few grains to half a dram, and gave near four drams of it in the day with remarkably good effect. The hemlock may alſo be uſed externally either as a poultice or fomentation. The ſore may likewiſe be kept clean by injecting daily a ſtrong decoction of the tops and leaves into it. Few things contribute more to the healing of foul ſordid ulcers of any kind than keeping them thoroughly clean. This ought never to be neglected. The beſt application for this purpoſe ſeems to be the carrot-poultice. The root of the common carrot may be grated, and moiſtened with as much water as will bring it to the

conſiſtence

conſiſtence of a poultice or cataplaſm. This muſt be applied to the ſore, and renewed twice a-day. It generally cleans the ſore, eaſes the pain, and takes away the diſagreeable ſmell, which are objects of no ſmall importance in ſuch a dreadful diſorder. Wort, or an infuſion of malt, has been recommended, not only as a proper drink, but as a powerful medicine, in this diſeaſe. It muſt be frequently made freſh, and the patient may take it at pleaſure. Two, three, or even four, Engliſh pints of it may be drunk every day for a conſiderable time. No benefit can be expected from any medicine, in this diſeaſe, unleſs it be perſiſted in for a long time. It is of too obſtinate a nature to be ſoon removed; and, when it admits of a cure at all, it muſt be brought about by inducing an almoſt total change of the habit, which muſt always be a work of time. Setons or iſſues in the neighbourhood of the cancer have ſometimes good effects. When all other medicines fail, recourſe muſt be had to opium, as a kind of ſolace. This will not indeed cure this diſeaſe, but it will eaſe the patient's agony, and render life more tolerable while it continues. To avoid this dreadful diſorder, people ought to uſe wholeſome food, to take ſufficient exerciſe in the open air, and carefully to guard againſt all blows, bruiſes, and every kind of preſſure upon the breaſts or other glandular parts.

Of POISONS.

EVERY perſon ought, in ſome meaſure, to be acquainted with the nature and cure of poiſons. They are generally taken unawares, and their effects are often ſo ſudden and violent, as not to admit of delay, or allow time to procure the aſſiſtance of phyſicians. Happily indeed no great degree of medical knowledge is here neceſſary; the remedies for moſt poiſons being generally at hand, or eaſily obtained, and nothing but common prudence needful in the application of them. The cure of all poiſons taken in the ſtomach, without exception, depends chiefly on diſcharging them as ſoon as poſſible. For this purpoſe the patient ſhould drink large quantities of new milk and ſalad-oil till he vomits; or he may drink warm water mixed with oil. Fat broths are likewiſe proper, provided they can be got ready in time. Where no oil is to be had, freſh butter may be melted, and mixed with the milk or water. Theſe things are to be drunk as long as the inclination to vomit continues. Some have drunk eight or ten quarts before the vomiting ceaſed; and it is never ſafe to leave off drinking while one particle of the poiſon remains in the ſtomach. Theſe oily or fat ſubſtances not only provoke vomiting, but likewiſe blunt the acrimony of mineral poiſon, and prevent its wounding the bowels, but, if they ſhould not make the perſon vomit, half a dram or two ſcruples of the powder of ipecacuanha muſt be given, or a few ſpoonfuls of the oxymel or vinegar of ſquills may be mixed with the water which he drinks. Vomiting may likewiſe

likewiſe be excited by tickling the inſide of the throat with a feather. Should thoſe methods however fail, half a dram of white vitriol, or five or ſix grains of emetic tartar, muſt be adminiſtered. If tormenting pains are felt in the lower belly, and there is reaſon to fear that the poiſon has got down to the inteſtines, clyſters of milk and oil muſt be very frequently thrown up; and the patient muſt drink emollient decoctions of barley, oatmeal, marſh-mallows, and ſuch like. He muſt likewiſe take an infuſion of ſenna and manna, a ſolution of Glauber's ſalts, or ſome other purgative. After the poiſon has been evacuated, the patient ought, for ſome time, to live upon ſuch things as are of a healing and cooling quality; to abſtain from fleſh, and all ſtrong liquors, and to live upon milk, broth, gruel, light puddings, and other ſpoon-meats of eaſy digeſtion. His drink ſhould be barley-water, linſeed-tea, or infuſions of any of the mild mucilaginous vegetables. Though vegetable poiſons, when allowed to remain in the ſtomach, often prove fatal; yet the danger is generally over as ſoon as they are diſcharged. Not being of ſuch a cauſtic or corroſive nature, they are leſs apt to wound or inflame the bowels than mineral ſubſtances; no time, however, ought to be loſt in having them diſcharged. For the bites of poiſonous animals, a great variety of certain and immediate cures are pointed out in the Herbal. For the bite of a viper, however, the wound ſhould be well ſucked, and afterwards rubbed with warm ſalad-oil. A poultice of bread and milk, ſoftened with ſalad-oil, ſhould likewiſe be applied to the wound: and the patient ought to drink freely of vinegar-whey, or water-gruel with vinegar in it, to make him ſweat. Vinegar is one of the beſt drinks which can be uſed in any kind of poiſon, and ought to be taken very liberally. If the patient be ſick, he may take a vomit. This courſe will be ſufficient to cure the bite of any of the poiſonous animals of this country. It is the happineſs of this iſland to have very few poiſonous animals, and thoſe which we have are by no means of the moſt violent kind. We cannot however make the ſame obſervation with regard to poiſonous vegetables: theſe abound every where, and prove often fatal to the ignorant and unwary. This indeed is chiefly owing to careleſſneſs. Children ought early to be cautioned againſt eating any kind of fruit, roots, or berries, which they do not know; and all poiſonous plants to which they can have acceſs, ought, as far as poſſible, to be deſtroyed. This would not be ſo difficult a taſk as ſome people imagine, were this Herbal kept in all families, and their children made to read leſſons from it, as an eaſy occaſional taſk. This, I think, will appear an indiſpenſible duty in parents, when we reflect, that ſeldom a year paſſes but we have accounts of ſeveral perſons poiſoned by eating hemlock-roots inſtead of parſnips, or ſome kind of fungus which they had gathered for muſhrooms. Theſe examples ought to put people upon their guard with reſpect to the former, and put the latter entirely out of uſe. We might here

mention many other plants and animals of a poiſonous nature which are found in foreign countries; but, as our obſervations are chiefly intended for this iſland, we ſhall paſs this over. It may not, however, be amiſs to obſerve, for the behoof of ſuch of our countrymen as go to America, that an effectual remedy is now ſaid to be found for the bite of a rattle-ſnake.—The preſcription is as follows: Take of the roots of plantain and horehound, in ſummer, roots and branches together, a ſufficient quantity; bruiſe them in a mortar, and ſqueeze out the juice; of which give, as ſoon as poſſible, one large ſpoonful; if the patient be ſwelled, you muſt force it down his throat. This generally will cure; but, if he finds no relief in an hour after, you may give another ſpoonful, which ſeldom fails.—If the roots are dried, they muſt be moiſtened with a little water. To the wound may be applied a leaf of good tobacco moiſtened with rum. We give this upon the faith of Dr. Brookes, who ſays it was the invention of a negro; for the diſcovery of which he had his freedom purchaſed, and an hundred pounds per annum ſettled upon him during life, by the General Aſſembly of Caroli . .

Of INFLAMMATIONS and ABSCESSES.

FROM whatever cauſe an inflammation proceeds, it muſt terminate either by diſperſion, ſuppuration, or gangrene. Though it is impoſſible to foretel with certainty in which of theſe ways any particular inflammation will terminate, yet a probable conjecture may be formed with regard to the event, from a knowledge of the patient's age and conſtitution. Inflammations happening in a ſlight degree upon colds, and without any previous indiſpoſition, will moſt probably be diſperſed; thoſe which follow cloſe upon a fever, or happen to perſons of a groſs habit of body, will generally ſuppurate; and thoſe which attack very old people, or perſons of a dropſical habit, will have a ſtrong tendency to gangrene.

CURE.—If the inflammation be ſlight, and the conſtitution ſound, the diſperſion ought always to be attempted. This will be beſt promoted by a ſlender diluting diet, plentiful bleeding, and repeated purges. The part itſelf muſt be fomented, and, if the ſkin be very tenſe, it may be embrocated with a mixture of three fourths of ſweet oil, and one fourth of vinegar, and afterwards covered with a piece of wax plaſter. If, notwithſtanding theſe applications, the ſymptomatic fever increaſes, and the tumour becomes larger, with violent pain and pulſation, it will be proper to promote the ſuppuration. The beſt application for this purpoſe is a ſoft poultice, which may be renewed twice a-day. If the ſuppuration proceeds but ſlowly, a raw onion cut ſmall or bruiſed may be ſpread upon the poultice. When the abſceſs is ripe or fit for opening, which may eaſily be known from the thinneſs of the ſkin in the moſt prominent part of it,

a fluctuation of matter which may be felt under the finger, and, generally ſpeaking, an abatement of the pain, it may be opened either with a lancet or by means of a cauſtic. The laſt way in which an inflammation terminates is in a gangrene or mortification, the approach of which may be known by the following ſymptoms: The inflammation loſes its redneſs, and becomes duſkiſh or livid; the tenſion of the ſkin goes off, and it feels flabby; little bladders filled with ichor of different colours ſpread all over it; the tumour ſubſides, and from a duſkiſh complexion becomes black; a quick low pulſe, with cold clammy ſweats, are the immediate forerunners of death. When theſe ſymptoms firſt appear, the part ought to be dreſſed with London treacle, or a cataplaſm made of lixivium and bran; ſhould the ſymptoms become worſe, that part muſt be ſcarified, and afterwards dreſſed with baſilicon ſoftened with oil of turpentine. All the dreſſings muſt be applied warm. With regard to internal medicines, the patient muſt be ſupported with generous cordials, and the Peruvian bark exhibited in as large doſes as the ſtomach will bear it. If the mortified parts ſhould ſeparate, the wound will become a common ulcer, and muſt be treated accordingly. This article includes the treatment of all thoſe diſeaſes, which, in different parts of the country, go by the name of biles, impoſthumes, whitloes, &c. They are all abſceſſes in conſequence of a previous inflammation, which, if poſſible, ought to be diſcuſſed, but, when this cannot be done, the ſuppuration ſhould be promoted, and the matter diſcharged by an inciſion, if neceſſary; afterwards the ſore may be dreſſed with yellow baſilicon, or ſome other digeſtive ointment.

Of WOUNDS.

NO part of medicine has been more miſtaken than the treatment or cure of wounds. It is however a fact, that no external application whatever contributes towards the cure of a wound, any other way than by keeping the parts ſoft, clean, and defending them from the external air, which may be as effectually done by dry lint as by the moſt pompous applications, while it is exempt from many of the bad conſequences attending them. The ſame obſervation holds with reſpect to internal applications. Theſe only promote the cure of wounds as far as they tend to prevent a fever, or to remove any cauſe that might obſtruct or impede the operations of nature. It is nature alone that cures wounds; all that art can do is to remove obſtacles, and to put the parts in ſuch a condition as is the moſt favourable to nature's efforts.

CURE.—The firſt thing to be done, when a perſon has received a wound, is to examine whether any foreign body be lodged in it, as wood, ſtone, iron, lead, glaſs, dirt, bits of cloth, or the like. Theſe, if poſſible, ought to be extracted,

and

and the wound cleaned, before any dreſſings be applied. When that cannot be effected with ſafety, on account of the patient's weakneſs, or loſs of blood, they muſt be ſuffered to remain in the wound, and afterwards extracted when he is more able to bear it. When a wound penetrates into any of the cavities of the body, as the breaſt, the bowels, &c. or where any conſiderable blood-veſſel is cut, a ſkilful ſurgeon ought immediately to be called, otherwiſe the patient may loſe his life. But ſometimes the diſcharge of blood is ſo great, that, if it be not ſtopped, the patient may die, even before a ſurgeon, though at no great diſtance, can arrive. In this caſe, ſomething muſt be done by thoſe who are preſent. If the wound be in any of the limbs, the bleeding may generally be ſtopped by applying a tight ligature or bandage round the member a little above the wound. In parts where this bandage cannot be applied, various other methods may be tried to ſtop the bleeding, as the application of ſtyptics, aſtringents, &c. Cloths dipped in a ſolution of blue vitriol in water, or the ſtyptic water of the diſpenſatories, may be applied to the wound. When theſe cannot be obtained, ſtrong ſpirits of wine may be uſed. Some recommended the agaric of the oak as preferable to any of the other ſtyptics; and indeed it deſerves conſiderable encomiums. It is eaſily obtained, and ought to be kept in every family, in caſe of accidents. A piece of it muſt be laid upon the wound, and covered with a good deal of lint, above which a bandage may be applied ſo tight as to keep it firmly on. Though ſpirits, tinctures, and hot balſams, may be uſed, in order to ſtop the bleeding when it is exceſſive, they are improper at other times. They do not promote but retard the cure, and often change a ſimple wound into an ulcer. People imagine, becauſe hot balſams congeal the blood, and ſeem as it were to ſolder up the wound, that they therefore heal it; but this is only a deception. They may indeed ſtop the flowing blood, by ſearing the mouths of the veſſels; but, by rendering the parts callous, they obſtruct the cure. When a wound is greatly inflamed, the moſt proper application is a poultice of bread and milk, ſoftened with a little ſweet oil or freſh butter. This muſt be applied inſtead of a plaſter, and ſhould be changed twice a-day. If the wound be large, and there is reaſon to fear an inflammation, the patient ſhould be kept on a very low diet. He muſt abſtain from fleſh, ſtrong liquors, and every thing that is of a heating nature. If he be of a full habit, and has loſt but little blood from the wound, he muſt be bled; and, if the ſymptoms be urgent, the operation may be repeated. But, when the patient has been greatly weakened by loſs of blood from the wound, it will be dangerous to bleed him, even though a fever ſhould enſue. Nature ſhould never be too far exhauſted: it is always more ſafe to allow her to ſtruggle with the diſeaſe in her own way, than to ſink the patient's ſtrength by exceſſive evacuations.

Of BURNS.

IN ſlight burns which do not break the ſkin, it is cuſtomary to hold the part near the fire for a competent time, to rub it with ſalt, or to lay a compreſs upon it dipped in ſpirits of wine or brandy. But, when the burn has penetrated ſo deep as to bliſter or break the ſkin, it muſt be dreſſed with ſome of the liniments for burns, or with the emollient and gently-drying ointment, commonly called Turner's cerate. This may be mixed with an equal quantity of freſh olive oil, and ſpread upon a ſoft rag, and applied to the part affected. When this ointment cannot be had, an egg may be beat up with about an equal quantity of the ſweeteſt ſalad oil. This will ſerve very well till a proper ointment can be prepared. When the burning is very deep, after the firſt two or three days, it ſhould be dreſſed with equal parts of yellow baſilicon and Turner's cerate mixed together. When the burn is violent, or has occaſioned a high degree of inflammation, and there is reaſon to fear a gangrene or mortification, the ſame means muſt be uſed to prevent it as are recommended in other violent inflammations. The patient in this caſe muſt live low, and drink freely of weak diluting liquors. He muſt likewiſe be bled, and have his body kept open. But, if the burnt part ſhould become livid or black, with other ſymptoms of mortification, it will be neceſſary to bathe them frequently with warm camphorated ſpirits of wine, tincture of myrrh, or other antiſeptics, mixed with a decoction of the bark. In this caſe the bark muſt likewiſe be taken internally, and the patient's diet muſt be more generous.

Of BRUISES.

IN ſlight bruiſes it will be ſufficient to bathe the part with warm vinegar, to which a little brandy or rum may occaſionally be added, and to keep cloths wet with this mixture conſtantly applied to it. This is more proper than rubbing it with brandy, ſpirits of wine, or other ardent ſpirits, which are commonly uſed in ſuch caſes. In ſome parts of the country, the peaſants apply to a recent bruiſe a cataplaſm of freſh cow-dung. I have often ſeen this cataplaſm applied to violent contuſions occaſioned by blows, falls, bruiſes, and ſuch-like; and never knew it fail to have a good effect. When a bruiſe is very violent, the patient ought immediately to be bled, and put upon a proper regimen. His food ſhould be light and cool, and his drink weak and of an opening nature; as whey ſweetened with honey, decoctions of tamarinds, barley, cream-tartar whey, and ſuch-like. The bruiſed part muſt be bathed with vinegar and water as directed above; and a poultice, made by boiling of crumb of bread, elder-flowers, and camomile-flowers, in equal quantities of vinegar and water, applied to it. This poultice is peculiarly proper

when a wound is joined to the bruiſe. It may be renewed two or three times a-day. As the ſtructure of the veſſels is totally deſtroyed by a violent bruiſe, there often enſues a great loſs of ſubſtance, which produces an ulcerous ſore, very difficult to cure. If the bone be affected, the ſore will not heal before an exfoliation takes place; that is, before the diſeaſed part of the bone ſeparates, and comes out through the wound. This is often a very ſlow operation, and may even require ſeveral years to be completed. Hence it happens, that theſe ſores are frequently miſtaken for the king's evil, and treated as ſuch, though, in fact, they proceed ſolely from the injury which the ſolid parts received from the blow. Patients in this ſituation are peſtered with different advice. Every one who ſees them propoſes a new remedy, till the ſore is ſo much irritated with various and oppoſite applications, that it is often at length rendered abſolutely incurable. The beſt method of managing ſuch ſores is, to take care that the patient's conſtitution does not ſuffer by confinement or improper medicine, and to apply nothing to them but ſome ſimple ointment ſpread upon ſoft lint, over which a poultice of bread and milk, with boiled camomile flowers, or the like, may be put, to nouriſh the part, and keep it ſoft and warm. Nature, thus aſſiſted, will generally in time operate a cure, by throwing off the diſeaſed parts of the bone; after which the ſore ſoon heals.

Of ULCERS.

ULCERS may be the conſequence of wounds, bruiſes, or impoſthumes, improperly treated; they may likewiſe proceed from an ill ſtate of the humours, or what may be called a bad habit of body. In the latter caſe, they ought not to be haſtily dried up, otherwiſe it may prove fatal to the patient. Ulcers happen moſt commonly in the decline of life; and perſons who neglect exerciſe, and live groſsly, are moſt liable to them. They might often be prevented by retrenching ſome part of the ſolid food, or by opening artificial drains, as iſſues, ſetons, or the like. It requires conſiderable ſkill to be able to judge whether or not an ulcer ought to be dried up. In general, all ulcers which proceed from a bad habit of body ſhould be ſuffered to continue open, at leaſt till the conſtitution has been ſo far changed by proper regimen, or the uſe of medicine, that they ſeem diſpoſed to heal of their own accord. Ulcers which are the effect of malignant fevers, or other acute diſeaſes, may generally be healed with ſafety after the health has been reſtored for ſome time. The cure ought not, however, to be attempted too ſoon, nor at any time without the uſe of purging medicines and a proper regimen. When wounds or bruiſes have, by wrong treatment, degenerated into ulcers, if the conſtitution be good, they may generally be healed with ſafety. When ulcers either accompany chronical diſeaſes, or come in their ſtead,

they muſt be cautiouſly healed. If an ulcer conduces to the patient's health, from whatever cauſe it proceeds, it ought not to be healed; but if, on the contrary, it waſtes the ſtrength, and conſumes the patient by a ſlow fever, it ſhould be healed as ſoon as poſſible. We would earneſtly recommend a ſtrict attention to theſe particulars, to all who have the misfortune to labour under this diſorder, particularly perſons in the decline of life; as we have frequently known people throw away their lives by the want of it, while they were extolling and generouſly rewarding thoſe whom they ought to have looked upon as their executioners. The moſt proper regimen for promoting the cure of ulcers is to avoid all ſpices, ſalted and high-ſeaſoned food, all ſtrong liquors, and to leſſen the uſual quantity of fleſh meat. The body ought to be kept gently open by a diet conſiſting chiefly of cooling laxative vegetables, and by drinking butter-milk, whey ſweetened with honey, or the like. A fiſtulous ulcer can ſeldom be cured without an operation. It muſt either be laid open ſo as to have its callous parts deſtroyed by ſome corroſive application, or they muſt be entirely cut away with the knife: but, as this operation requires the hand of an expert ſurgeon, there is no occaſion to deſcribe it. Ulcers about the anus are moſt apt to become fiſtulous, and are very difficult to cure. Some, indeed, pretend to have found Ward's fiſtula-paſte very ſucceſsful in this complaint. It is not a dangerous medicine, and, being eaſily procured, it may deſerve a trial; but, as theſe ulcers generally proceed from an ill habit of body, they will ſeldom yield to any thing except a long courſe of regimen, aſſiſted by medicines, which are calculated to correct that particular habit, and to induce an almoſt total change in the conſtitution.

Of DISLOCATIONS.

WHEN a bone is moved out of its place or articulation, ſo as to impede its proper functions, it is ſaid to be luxated or diſlocated. As this often happens to perſons in ſituations where no medical aſſiſtance can be obtained, by which means limbs, and even lives, are frequently loſt, we ſhall endeavour to point out the method of reducing the moſt common luxations, and thoſe which require immediate aſſiſtance. Any perſon of common ſenſe and reſolution, who is preſent when a diſlocation happens, may often be of more ſervice to the patient than the moſt expert ſurgeon can after the ſwelling and inflammation have come on. When theſe are preſent, it is difficult to know the ſtate of the joint, and dangerous to attempt a reduction; and, by waiting till they are gone off, the muſcles become ſo relaxed, and the cavity filled up, that the bone can never afterwards be retained in its place. A recent diſlocation may generally be reduced by extenſion alone, which muſt always be greater or leſs according to the ſtrength of the muſcles which move the joint, the age, robuſtneſs, and other circumſtances, of the patient. When the bone has been out of its place for any conſiderable time,

and

and a ſwelling or inflammation has come on, it will be neceſſary to bleed the patient, and, after fomenting the part, to apply ſoft poultices with vinegar to it for ſome time before the reduction is attempted. All that is neceſſary after the reduction, is to apply cloths dipped in vinegar or camphorated ſpirits of wine to the part, and to keep it perfectly eaſy. Many bad conſequences proceed from the neglect of this rule. A diſlocation ſeldom happens without the tendons and ligaments of the joint being ſtretched, and ſometimes torn. When theſe are kept eaſy till they recover their ſtrength and tone, all goes on very well; but, if the injury be increaſed by too frequent an exertion of the parts, no wonder if they be found weak and diſeaſed ever after.

Dislocation of the Jaw.—The uſual method of reducing a diſlocated jaw, is to ſet the patient upon a low ſtool, ſo as an aſſiſtant may hold the head firm by preſſing it againſt his breaſt. The operator is then to thruſt his two thumbs, being firſt wrapped up with linen cloths that they may not ſlip, as far back into the patient's mouth as he can, while his fingers are applied to the jaw externally. After he has got firm hold of the jaw, he is to preſs it ſtrongly downwards and backwards, by which means the elapſed heads of the jaw may be eaſily puſhed into their former cavities. The peaſants, in ſome parts of the country, have a peculiar way of performing this operation. One of them puts a handkerchief under the patient's chin, then, turning his back to that of the patient, pulls him up by the chin ſo as to ſuſpend him from the ground. This method often ſucceeds; but we think it a dangerous one, and therefore recommend the former.

Dislocation of the Neck.—The neck may be diſlocated by falls, violent blows, or the like. In this caſe, if the patient receives no aſſiſtance, he ſoon dies, which makes people imagine the neck was broken; it is, however, for the moſt part, only partially diſlocated, and may be reduced by almoſt any perſon who has reſolution enough to attempt it. A complete diſlocation of the neck is inſtantaneous death. When the neck is diſlocated, the patient is immediately deprived of all ſenſe and motion; his neck ſwells, his countenance appears bloated, his chin lies upon his breaſt, and his face is generally turned towards one ſide. To reduce this diſlocation, the unhappy perſon ſhould immediately be laid upon his back on the ground, and the operator muſt place himſelf behind him ſo as to be able to lay hold of his head with both his hands, while he makes a reſiſtance by placing his knees againſt the patient's ſhoulders. In this poſture he muſt pull the head with conſiderable force, gently twiſting it at the ſame time, if the face be turned to one ſide, till he perceives that the joint is replaced, which may be known from the noiſe which the bones generally make when going in, the patient's beginning to breathe, and the head continuing in its natural poſture. After the neck is reduced, the patient ought to be bled, and ſhould be ſuffered to reſt for ſome days, till the parts recover their proper tone.

Dislocation of the Shoulder.—The humerus or upper bone of the arm may be diſlocated in various directions: it happens however moſt frequently downwards, but very ſeldom directly upwards. From the nature of its articulation, as well as from its expoſure to external injuries, this bone is the moſt ſubject to diſlocation of any in the body. A diſlocation of the humerus may be known by a depreſſion or cavity on the top of the ſhoulder, and an inability to move the arm. When the diſlocation is downward or forward, the arm is elongated, and a ball or lump is perceived under the armpit; but, when it is backward, there appears a protuberance behind the ſhoulder, and the arm is thrown forwards towards the breaſt. The uſual method of reducing diſlocations of the ſhoulder is to ſeat the patient on a low ſtool, and to cauſe an aſſiſtant to hold his body ſo that it may not give way to the extenſion, while another lays hold of the arm a little above the elbow, and gradually extends it. The operator then puts a napkin under the patient's arm, and cauſes it to be tied behind his own neck; by this, while a ſufficient extenſion is made, he lifts up the head of the bone, and with his hands directs it into the proper place. There are various machines invented for facilitating this operation, but the hand of an expert ſurgeon is always more ſafe. In young and delicate patients, it is a very eaſy matter to reduce the ſhoulder by extending the arm with one hand, thruſting in the head of the bone with the other. In making the extenſion, the arm ought always to be a little bent.

Dislocation of the Elbow.—The bones of the fore-arm may be diſlocated in any direction. When this is the caſe, a protuberance may be obſerved on that ſide of the arm towards which the bone is puſhed, from which, and the patient's inability to bend his arm, a diſlocation of this joint may eaſily be known. Two aſſiſtants are generally neceſſary for reducing a diſlocation of the elbow; one of them muſt lay hold of the arm above, and the other below, the joint, and make a pretty ſtrong extenſion, while the operator returns the bones into their proper place. Afterwards the arm muſt be bent and ſuſpended for ſome time with a ſling about the neck. Luxations of the wriſt and fingers are to be reduced in the ſame manner as thoſe of the elbow, viz. by making an extenſion in different directions, and thruſting the head of the bone into its place.

Dislocation of the Thigh.—When the thigh-bone is diſlocated forward and downward, the knee and foot are turned out, and the leg is longer than the other; but, when it is diſplaced backward, it is uſually puſhed upward at the ſame time, by which means the limb is ſhortened, and the foot is turned inwards. When the thigh-bone is diſplaced forward and downward, the patient, in order to have it

reduced, muſt be laid upon his back, and made faſt by bandages, or held by aſſiſtants, while by others an extenſion is made by means of ſlings fixed about the bottom of the thigh a little above the knee. While the extenſion is made, the operator muſt puſh the head of the bone outward, till it gets into the ſocket. If the diſlocation be outwards, the patient muſt be laid upon his face, and, during the extenſion, the head of the bone muſt be puſhed inward. Diſlocations of the knees, ankles, and toes, are reduced much in the ſame manner as thoſe of the upper extremities, viz. by making an extenſion in oppoſite directions, while the operator replaces the bones. In many caſes, however, the extenſion alone is ſufficient, and the bone will ſlip into its place merely by pulling the limb with ſufficient force. It is not hereby meant, that force alone is ſufficient for the reduction of diſlocations.

Of BROKEN BONES, &c.

THERE is, in moſt country villages, ſome perſon who pretends to the art of reducing fractures. Though, in general, ſuch perſons are very ignorant, yet ſome of them are very ſucceſsful; which evidently proves, that a ſmall degree of learning, with a ſufficient ſhare of common ſenſe and a mechanical head, will enable a man to be uſeful in this way. We would, however, adviſe people never to employ ſuch operators, when an expert and ſkilful ſurgeon can be had; but, when that is impracticable, they muſt be employed: we ſhall therefore recommend the following hints to their conſideration: When a large bone is broken, the patient's diet ought, in all reſpects, to be the ſame as in an inflammatory fever. He ſhould likewiſe be kept quiet and cool, and his body open by emollient clyſters, or, if theſe cannot be conveniently adminiſtered, by food that is of an opening quality; as ſtewed prunes, apples boiled in milk, boiled ſpinage, and the like. It ought however to be here remarked, that perſons who have been accuſtomed to live high are not all of a ſudden to be reduced to a very low diet. This might have fatal effects. There is often a neceſſity for indulging even bad habits, in ſome meaſure, where the nature of the diſeaſe might require a different treatment. It will generally be neceſſary to bleed the patient immediately after a fracture, eſpecially if he be young, of a full habit, or has, at the ſame time, received any bruiſe or contuſion. This operation ſhould not only be performed ſoon after the accident happens, but, if the patient be very feveriſh, it may be repeated next day. When ſeveral of the ribs are broken, bleeding is peculiarly neceſſary. If any of the large bones which ſupport the body are broken, the patient muſt keep his bed for ſeveral weeks. It is by no means neceſſary, however, that he ſhould lie all that time, as is cuſtomary, upon his back. This ſituation ſinks the ſpirits, galls and frets the patient's ſkin, and renders him

very uneaſy. After the ſecond week he may be gently raiſed up, and may ſit ſeveral hours, ſupported by a bed-chair, or the like, which will greatly relieve him. Great care, however, muſt be taken, in raiſing him up, and laying him down, that he make no exertions himſelf, otherwiſe the action of the muſcles may pull the bone out of its place. It has been cuſtomary, when a bone was broken, to keep the limb for five or ſix weeks continually upon the ſtretch. But this is a bad poſture. It is both uneaſy to the patient and unfavourable to the cure. The beſt ſituation is to keep the limb a little bent. This is the poſture into which every animal puts its limbs when it goes to reſt, and in which feweſt muſcles are upon the ſtretch. It is eaſily effected, by either laying the patient upon his ſide, or making the bed ſo as to favour this poſition of the limb. All that art can do towards the cure of a broken bone, is to lay it perfectly ſtraight, and to keep it quite eaſy. All tight bandages do hurt. They had much better be wanting altogether. A great many of the bad conſequences which ſucceed to fractured bones are owing to the hoſpital-practice of tight bandages. The beſt method of retention is by two or more ſplints made of leather or paſteboard. Theſe, if moiſtened before they be applied, ſoon aſſume the ſhape of the included member, and are ſufficient, with the aſſiſtance of a very ſlight bandage, for all the purpoſes of retention. The ſplints ſhould always be as long as the limb, with holes cut for the ankles when the fracture is in the leg. In fractures of the ribs, where a bandage cannot be properly uſed, an adheſive plaſter may be applied over the part. The patient, in this caſe, ought to keep himſelf quite eaſy, avoiding every thing that may occaſion ſneezing, laughing, coughing, or the like. He ought to keep his body in a ſtraight poſture, and ſhould take care that his ſtomach be conſtantly diſtended, by taking frequently ſome light food, and drinking freely of weak watery liquors. The moſt proper external application for a fracture is *oxycrate*, or a mixture of vinegar and water. The bandages ſhould be wet with this at every dreſſing.

Of STRAINS.

STRAINS are often attended with worſe conſequences than broken bones. The reaſon is obvious; they are generally neglected. When a bone is broken, the patient is obliged to keep the member eaſy, becauſe he cannot make uſe of it; but, when a joint is only ſtrained, the perſon, finding he can ſtill make a ſhift to move it, is ſorry to loſe his time for ſo trifling an ailment. In this way he deceives himſelf, and converts into an incurable malady what might have been removed by only keeping the part eaſy for a few days. Country people generally immerſe a ſtrained limb in cold water. This is very proper, provided it be done immediately, and not kept in too long. But the cuſtom of keeping the part immerſed in cold water for a long time, is certainly dangerous. It relaxes inſtead

ſtead of bracing the part, and is more likely to produce a diſeaſe than remove one. Wrapping a garter, or ſome other bandage, pretty tight about the ſtrained part, is likewiſe of uſe. It helps to reſtore the proper tone of the veſſels, and prevents the action of the parts from increaſing the diſeaſe. It ſhould not however be applied too tight. Bleeding near the affected part will frequently have a very good effect: but what we would recommend above all is eaſe. It is more to be depended on than any medicine, and ſeldom fails to remove the complaint.

Of RUPTURES.

CHILDREN and very old people are moſt liable to this diſeaſe. In the former it is generally occaſioned by exceſſive crying, coughing, vomiting, or the like. In the latter, it is commonly the effect of blows or violent exertions of the ſtrength, as leaping, carrying great weights, &c. In both, a relaxed habit, indolence, and an oily or very moiſt diet, diſpoſe the body to this diſeaſe. A rupture ſometimes proves fatal before it is diſcovered. Whenever ſickneſs, vomiting, and obſtinate coſtiveneſs, give reaſon to ſuſpect an obſtruction of the bowels, all thoſe places where ruptures uſually happen ought carefully to be examined. The protruſion of a very ſmall part of the gut will occaſion all theſe ſymptoms; and, if not returned in due time, will prove mortal. On the firſt appearance of a rupture in an infant, it ought to be laid upon its back, with its head very low. While in this poſture, if the gut does not return of itſelf, it may eaſily be put up by gentle preſſure. After it is returned, a piece of ſticking plaſter may be applied over the part, and a proper truſs or bandage muſt be conſtantly worn for a conſiderable time. The method of making and applying theſe rupture-bandages for children is pretty well known. The child muſt, as far as poſſible, be kept from crying, and from all violent motion, till the rupture is quite healed. In adults, when the gut has been forced down with great violence, or happens, from any cauſe, to be inflamed, there is often great difficulty in returning it. The patient ſhould be bled; after which, he muſt be laid upon his back, with his head very low, and his breech raiſed high with pillows. In this ſituation flannel cloths wrung out of a decoction of mallows and camomile-flowers, or, if theſe are not at hand, of warm water, muſt be applied for a conſiderable time. A clyſter made of this decoction, with a large ſpoonful of butter and a little ſalt, may be afterwards thrown up. If theſe ſhould not prove ſucceſsful, recourſe muſt be had to preſſure. If the tumour be very hard, conſiderable force will be neceſſary; but it is not force alone which ſucceeds here. The operator, at the ſame time that he makes a preſſure with the palms of his hands, muſt with his fingers artfully conduct the gut in by the ſame aperture through which it came out. The manner of doing this can be much eaſier conceived

conceived than deſcribed. Should theſe endeavours prove ineffectual, clyſters of the ſmoke of tobacco may be tried. Theſe have been often known to ſucceed where every other method failed. An adult, after the gut has been returned, muſt wear a ſteel bandage. It is needleſs to deſcribe this, as it may always be had ready-made from the artiſts. Such bandages are generally irkſome to the wearer for ſome time, but by cuſtom they become quite eaſy. No perſon, who has had a rupture after he arrived at man's eſtate, ſhould ever be without one of theſe bandages. Perſons who have a rupture ought carefully to avoid all violent exerciſe, carrying great weights, leaping, running, and the like. They ſhould likewiſe avoid windy aliment and ſtrong liquors; and ſhould carefully guard againſt catching cold.

Of RECOVERING DROWNED PERSONS.

WHEN a perſon has remained above a quarter of an hour under water, there can be no conſiderable hopes of his recovery. But, as ſeveral circumſtances may happen to have continued life, in ſuch an unfortunate ſituation, beyond the ordinary term, we ſhould never too ſoon reſign the unhappy object to his fate, but try every method for his relief, as there are many well-atteſted proofs of the recovery of perſons to life and health who had been taken out of the water apparently dead, and who remained a conſiderable time without exhibiting any ſigns of life. The firſt thing to be done after the body is taken out of the water, is to convey it, as ſoon as poſſible, to ſome convenient place where the neceſſary operations for its recovery may be performed. In attempting to recover perſons apparently drowned, the principal intention to be purſued is to reſtore the natural warmth, upon which all the vital functions depend; and to excite theſe functions by the application of ſtimulants, not only to the ſkin, but likewiſe to the lungs, inteſtines, &c. Though cold was by no means the cauſe of the perſon's death, yet it will prove an effectual obſtacle to his recovery. For this reaſon, after ſtripping him of his wet clothes, his body muſt be ſtrongly rubbed for a conſiderable time with coarſe linen cloths, as warm as they can be made; and, as ſoon as a well-heated bed can be got ready, he may be laid in it, and the rubbing ſhould be continued. Warm cloths ought likewiſe to be frequently applied to the ſtomach and bowels, and hot bricks, or bottles of warm water, to the ſoles of his feet, and to the palms of his hands. Strong volatile ſpirits ſhould be frequently applied to the noſe; and the ſpine of the back and pit of the ſtomach may be rubbed with warm brandy or ſpirit of wine. The temples ought always to be chafed with volatile ſpirits; and ſtimulating powders, as that of tobacco or marjoram, may be blown up the noſtrils. To renew the breathing, a ſtrong perſon may blow his own breath into the patient's mouth with all the force he can, holding his noſtrils at the ſame time. When it can be perceived, by the riſing of the cheſt or belly,

belly, that the lungs are filled with air, the perſon ought to deſiſt from blowing, and ſhould preſs the breaſt and belly ſo as to expel the air again; and this operation may be repeated for ſome time, alternately inflating and depreſſing the lungs ſo as to imitate natural reſpiration. If the lungs cannot be inflated in this manner, it may be attempted by blowing through one of the noſtrils, and at the ſame time keeping the other cloſe. When air cannot be forced into the cheſt by the mouth or noſe, it may be neceſſary to make an opening into the windpipe for this purpoſe. It is needleſs, however, to ſpend time in deſcribing this operation, as it ſhould not be attempted unleſs by perſons ſkilled in ſurgery. To ſtimulate the inteſtines, the fume of tobacco may be thrown up in form of a clyſter. There are various pieces of apparatus contrived for this purpoſe, which may be uſed when at hand; but, where theſe cannot be obtained, the buſineſs may be done by a common tobacco-pipe. The bowl of the pipe muſt be filled with tobacco well kindled, and, after the ſmall tube has been introduced into the fundament, the ſmoke may be forced up by blowing through a piece of paper full of holes wrapped round the mouth of the pipe, or by blowing through an empty pipe the mouth of which is applied cloſe to that of the other. While theſe things are doing, ſome of the attendants ought to be preparing a warm bath, into which the perſon ſhould be put, if the above endeavours prove ineffectual. Where there are no conveniences for uſing the warm bath, the body may be covered with warm ſalt, ſand, aſhes, grains, or ſuch-like. Tiſſot mentions an inſtance of a girl who was reſtored to life, after ſhe had been taken out of the water, ſwelled, bloated, and to all appearance dead, by laying her naked body upon hot aſhes, covering her with others equally hot, putting a bonnet round her head, and a ſtocking round her neck ſtuffed, with the ſame, and heaping coverings over all. After ſhe had remained half an hour in this ſituation, her pulſe returned, ſhe recovered ſpeech, and cried out, "I freeze, I freeze!" A little cherry-brandy was given her, and ſhe remained buried as it were under aſhes for eight hours; afterwards ſhe was taken out, without any other complaint except that of laſſitude or wearineſs, which went off in a few days. The doctor mentions likewiſe an inſtance of a man who was reſtored to life after he had remained ſix hours under water, by the heat of a dunghill. Till the patient ſhows ſome ſigns of life, and is able to ſwallow, it would be uſeleſs and even dangerous to pour liquors into his mouth. His lips, however, and tongue, may be frequently wet with a feather dipped in warm brandy, or other ſtrong ſpirits; and, as ſoon as he has recovered the power of ſwallowing, a little warm wine, or ſome other cordial, ought every now and then to be adminiſtered. We are by no means to diſcontinue our aſſiſtance as ſoon as the patients diſcover ſome tokens of life, ſince they ſometimes expire after theſe firſt appearances of recovering. The warm and ſtimulating applications are

ſtill to be continued, and ſmall quantities of ſome cordial ought frequently to be adminiſtered. Laſtly, though the perſon ſhould be manifeſtly re-animated, there ſometimes remain an oppreſſion, a cough, and feveriſhneſs, which effectually conſtitute a diſeaſe. In this caſe it will be neceſſary to bleed the patient in the arm, and to cauſe him to drink plentifully of barley-water, elder-flower tea, or any other ſoft pectoral infuſion. Such perſons as have the misfortune to be deprived of the appearance of life by a fall, a blow, ſuffocation, or the like, muſt be treated nearly in the ſame manner as thoſe who have been for ſome time under water.

Of CONVULSION FITS.

CONVULSION fits often conſtitute the laſt ſcene of acute or chronic diſorders. When this is the caſe, there can remain but ſmall hopes of the patient's recovery after expiring in a fit. But, when a perſon, who appears to be in perfect health, is ſuddenly ſeized with a convulſion fit, and ſeems to expire, ſome attempts ought always to be made to reſtore him to life. Infants are moſt liable to convulſions, and are often carried off very ſuddenly by one or more fits about the time of teething. There are many well-authenticated accounts of infants having been reſtored to life, after they had to all appearance expired in convulſions; but we ſhall only relate the following inſtance mentioned by Dr. Johnſon in his pamphlet on the practicability of recovering perſons viſibly dead: In the pariſh of St. Clement's at Colcheſter, a child of ſix months old, lying upon its mother's lap, having had the breaſt, was ſeized with a ſtrong convulſion fit, which laſted ſo long, and ended with ſo total a privation of motion of the body, lungs, and pulſe, that it was deemed abſolutely dead. It was accordingly ſtripped, laid out, the paſſing bell ordered to be tolled, and a coffin to be made; but a neighbouring gentlewoman who uſed to admire the child, hearing of its ſudden death, haſtened to the houſe, and, upon examining the child, found it not cold, its joints limber, and fancied that a glaſs ſhe held to its mouth and noſe was a little damped with the breath: upon which ſhe took the child in her lap, ſat down before the fire, rubbed it, and kept it in gentle agitation. In a quarter of an hour ſhe felt the heart begin to beat faintly; ſhe then put a little of the mother's milk into its mouth, continued to rub its palms and ſoles, found the child begin to move, and the milk was ſwallowed; and in another quarter of an hour ſhe had the ſatisfaction of reſtoring to its diſconſolate mother the babe quite recovered, eager to lay hold of the breaſt, and able to ſuck again. The child throve, had no more fits, is growing up, and at preſent alive. There are many other things which might be done, in caſe the above ſhould not ſucceed; as rubbing the body with ſtrong ſpirits, covering it with warm aſhes or ſalt, blowing air into the lungs, throwing up warm ſti-

mulating clyſters, or the ſmoke of tobacco, into the inteſtines, and ſuch-like. When children are dead-born, or expire ſoon after the birth, the ſame means ought to be uſed for their recovery as if they had expired in circumſtances ſimilar to thoſe juſt mentioned. Theſe directions may likewiſe be extended to adults, attention being always paid to the age and other circumſtances of the patient. The means uſed with ſo much efficacy in recovering drowned perſons are, with equal ſucceſs, applicable to a number of caſes where the powers of life ſeem in reality to be only ſuſpended, and to remain capable of renewing all their functions, on being put into motion again. It is ſhocking to reflect, that for want of this conſideration many perſons have been committed to the grave, in whom the principles of life might have been revived. The caſes wherein ſuch endeavours are moſt likely to be attended with ſucceſs, are all thoſe called ſudden deaths from an inviſible cauſe, as apoplexies, hyſterics, faintings, and many other diſorders wherein perſons in a moment ſink down and expire. The various caſualties, in which they may be tried, are, ſuffocations from the ſulphureous damps of mines, coal-pits, &c. the unwholeſome air of long-unopened wells or caverns; the noxious vapours ariſing from fermenting liquors; the ſteams of burning charcoal; ſulphureous mineral acids; arſenical effluvia, &c. The various accidents of drowning, ſtrangling, and apparent deaths, by blows, falls, hunger, cold, &c. likewiſe furniſh opportunities of trying ſuch endeavours. Thoſe perhaps who to appearance are killed by lightning, or by any violent agitation of the paſſions, as fear, joy, ſurpriſe, and ſuch-like, might alſo be frequently recovered by the uſe of proper means, as blowing ſtrongly into their lungs, &c.

Of COLD BATHING.

IMMERSION in cold water is a cuſtom which lays claims to the moſt remote antiquity: indeed it muſt have been coeval with man himſelf. The neceſſity of water for the purpoſe of cleanlineſs, and the pleaſure ariſing from its application to the body in hot countries, muſt very early have recommended it to the human ſpecies. Even the example of other animals was ſufficient to give the hint to man. By inſtinct many of them are led to apply cold water in this manner; and ſome, when deprived of its uſe, have been known to languiſh, and even to die. But whether the practice of cold bathing aroſe from neceſſity, reaſoning, or imitation, is an enquiry of no importance; our buſineſs is to point out the advantages which may be derived from it, and to guard people againſt an improper uſe of it. The cold bath recommends itſelf in a variety of caſes; and is peculiarly beneficial to the inhabitants of populous cities, who indulge in idleneſs, and lead ſedentary lives. In perſons of this deſcription the action of the ſolids is always too weak, which induces a languid circulation, a crude indigeſted maſs of humours, and obſtructions in the capillary veſ-

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ſels and glandular ſyſtem. Cold water, from its gravity, as well as its tonic power, is well calculated either to obviate or remove theſe ſymptoms. It accelerates the motion of the blood, promotes the different ſecretions, and gives permanent vigour to the ſolids. But all theſe important purpoſes will be more eſſentially anſwered by the application of ſalt water. This ought not only to be preferred on account of its ſuperior gravity, but likewiſe for its greater power of ſtimulating the ſkin, which promotes the perſpiration, and prevents the patient from catching cold. It is neceſſary, however, to obſerve, that cold bathing is more likely to prevent, than to remove, obſtructions of the glandular or lymphatic ſyſtem. Indeed, when theſe have arrived at a certain pitch, they are not to be removed by any means. In this caſe the cold bath will only aggravate the ſymptoms, and hurry the unhappy patient into an untimely grave. It is therefore of the utmoſt importance, previous to the patient's entering upon the uſe of the cold bath, to determine whether or not he labours under any obſtinate obſtructions of the lungs or other viſcera; and, where this is the caſe, cold bathing ought ſtrictly to be prohibited. In what is called a plethoric ſtate, or too great a fulneſs of the body, it is likewiſe dangerous to uſe the cold bath, without due preparation. In this caſe there is great danger of burſting a blood veſſel, or occaſioning an inflammation of the brain, or ſome of the viſcera. This precaution is the more neceſſary to citizens, as moſt of them live full, and are of a groſs habit. Yet what is very remarkable, theſe people reſort in crowds every ſeaſon to the ſea-ſide, and plunge into the water without the leaſt conſideration. No doubt they often eſcape with impunity; but does this give a ſanction to the practice? Perſons of this deſcription ought by no means to bathe, unleſs the body has been previouſly prepared by ſuitable evacuations. Another claſs of patients, who ſtand peculiarly in need of the bracing qualities of cold water, is the nervous. This includes a great number of the male, and almoſt all the female, inhabitants of great cities. Yet even thoſe perſons ought to be cautious in uſing the cold bath. Nervous people have often weak bowels, and may, as well as others, be ſubject to congeſtions and obſtructions of the viſcera; and in this caſe they will not be able to bear the effects of the cold water. For them, therefore, and indeed for all delicate people, the beſt plan would be to accuſtom themſelves to it by the moſt pleaſing and gentle degrees. They ought to begin with the temperate bath, and gradually uſe it cooler, till at length the coldeſt proves quite agreeable. Nature revolts againſt all great tranſitions; and thoſe who do violence to her dictates have often cauſe to repent of their temerity. To young people, and particularly to children, cold bathing is of the laſt importance. Their lax fibres render its tonic powers peculiarly proper. It promotes their growth, increaſes their ſtrength, and prevents a variety of diſeaſes incident to childhood. The moſt proper time of the day for uſing the cold bath is

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no doubt the morning, or at leaſt before dinner; and the beſt mode, that of quick immerſion. As cold bathing has a conſtant tendency to propel the blood and other humours towards the head, it ought to be a rule always to wet that part as ſoon as poſſible. By due attention to this circumſtance, there is reaſon to believe, that violent head-achs, and other complaints, which frequently proceed from cold bathing, might be often prevented. The cold bath, when too long continued in, not only occaſions an exceſſive flux of humours towards the head, but chills the blood, cramps the muſcles, relaxes the nerves, and wholly defeats the intention of bathing. Hence, by not adverting to this circumſtance, expert ſwimmers are often injured, and ſometimes even loſe their lives. All the beneficial purpoſes of cold bathing are anſwered by one ſingle immerſion; and the patient ought to be rubbed dry the moment he comes out of the water, and ſhould continue to take exerciſe for ſome time after. When cold bathing occaſions chillneſs, loſs of appetite, liſtleſſneſs, pain of the breaſt or bowels, a proſtration of ſtrength, or violent head-achs, it ought to be diſcontinued.

Of DRINKING the MINERAL WATERS.

THE waters moſt in uſe for medical purpoſes in Britain, are thoſe impregnated with ſalts, ſulphur, iron, and mephitic air, either ſeparately or variouſly combined. The errors which ſo often defeat the intention of drinking the purgative mineral waters, and which ſo frequently prove injurious to the patient, proceed from the manner of uſing them, the quantity taken, the regimen purſued, or uſing them in caſes where they are not proper. Drinking the water in too great quantity, not only injures the bowels and occaſions indigeſtion, but generally defeats the intention for which it is taken. The diſeaſes, for the cure of which mineral waters are chiefly celebrated, are moſtly of the chronic kind; and it is well known that ſuch diſeaſes can only be cured by the ſlow operation of alteratives, or ſuch medicines as act by inducing a gradual change in the habit. This requires length of time, and never can be effected by medicines which run off by ſtool, and operate chiefly on the firſt paſſages. Thoſe who wiſh for the cure of any obſtinate malady from the mineral waters, ought to take them in ſuch a manner as hardly to produce any effect whatever on the bowels. With this view a half-pint glaſs may be drunk at bed-time, and the ſame quantity an hour before breakfaſt, dinner, and ſupper. The doſe, however, muſt vary according to circumſtances. Even the quantity mentioned above will purge ſome perſons, while others will drink twice as much without being in the leaſt moved by it. Its operation on the bowels is the only ſtandard for uſing the water as an alterative. No more ought to be taken than barely to move the body; nor is it always neceſſary to carry it this length, provided the water goes off by the other emunctories, and does not occaſion a chil-

neſs, or flatulency in the ſtomach or bowels. When the water is intended to purge, the quantity mentioned above may be all taken before breakfaſt. To promote the operation of mineral waters, and to carry them through the ſyſtem, exerciſe is indiſpenſably neceſſary. This may be taken in any manner that is moſt agreeable to the patient, but he ought never to carry it to exceſs. As a purgative, theſe waters are chiefly recommended in diſeaſes of the firſt paſſages, accompanied with, or proceeding from, inactivity of the ſtomach and bowels, acidity, indigeſtion, vitiated bile, worms, putrid ſores, the piles, and jaundice. In moſt caſes of this kind, they are the beſt medicines that can be adminiſtered. But, when uſed with this view, it is ſufficient to take them twice, or at moſt three times, a-week, ſo as to move the body three or four times; and it will be proper to continue this courſe for ſome weeks. But the operation of the more active mineral waters is not confined to the bowels. They often promote the diſcharge of urine, and not unfrequently increaſe the perſpiration. This ſhows that they are capable of penetrating into every part of the body, and of ſtimulating the whole ſyſtem. Hence ariſes their efficacy in removing the moſt obſtinate of all diſorders, obſtructions of the glandular and lymphatic ſyſtem. Under this claſs is comprehended the ſcrophula or king's evil, indolent tumours, obſtructions of the liver, ſpleen, kidneys, and meſenteric glands. When theſe great purpoſes are to be effected, the waters muſt be uſed in the gradual manner mentioned above, and perſiſted in for a length of time. It will be proper, however, now and then to diſcontinue their uſe for a few days. The next great claſs of diſeaſes, where mineral waters are found to be beneficial, are thoſe of the ſkin, as the itch, ſcab, tetters, ring-worms, ſcaly eruptions, leproſies, blotches, foul ulcers, &c. Though theſe may ſeem ſuperficial, yet they are often the moſt obſtinate which the phyſician has to encounter, and not unfrequently ſet his ſkill at defiance; but they will ſometimes yield to the application of mineral waters for a ſufficient length of time; and in moſt caſes of this kind theſe waters deſerve a trial.

Of the VENEREAL DISEASE.

IT is peculiarly unfortunate for the unhappy perſons who contract this diſeaſe, that it lies under a ſort of diſgrace. This renders diſguiſe neceſſary, and makes the patient either conceal his diſorder altogether, or apply to thoſe who promiſe a ſudden and ſecret cure; but who in fact only remove the ſymptoms for a time, while they fix the diſeaſe deeper in the habit. By this means a ſlight infection, which might have been eaſily removed, is often converted into an obſtinate, and ſometimes incurable, malady. Another unfavourable circumſtance attending this diſeaſe is, that it aſſumes a variety of different ſhapes, and may with more propriety be called an aſſemblage of diſeaſes, than a ſingle one. No two diſ-

eaſes can require a more different method of treatment than this does in its different ſtages. Hence the folly and danger of truſting to any particular noſtrum for the cure of it. Such noſtrums are however generally adminiſtered in the ſame manner to all who apply for them, without the leaſt regard to the ſtate of the diſeaſe, the conſtitution of the patient, the degree of infection, and a thouſand other circumſtances of the utmoſt importance. Though the venereal diſeaſe is generally the fruit of unlawful embraces, yet it may be communicated to the innocent as well as the guilty. Infants, nurſes, midwives, and married women whoſe huſbands lead diſſolute lives, are often affected with it, and frequently loſe their lives by not being aware of their danger in due time. The unhappy condition of ſuch perſons certainly requires that we ſhould endeavour to point out the ſymptoms and cure of this too-common diſeaſe.

Of the VIRULENT GONORRHŒA.

THE virulent gonorrhœa is an involuntary diſcharge of infectious matter from the parts of generation in either ſex. It generally makes its appearance within eight or ten days after the infection has been received; ſometimes indeed it appears in two or three days, and at other times not before the end of four or five weeks. Previous to the diſcharge, the patient feels an itching with a ſmall degree of pain in the genitals. Afterwards a thin glary matter begins to diſtil from the urinary paſſage, which ſtains the linen, and occaſions a ſmall degree of titillation, particularly in the time of making water; this, gradually increaſing, ariſes at length to a degree of heat and pain, which are chiefly perceived about the extremity of the urinary paſſage, where a ſlight degree of redneſs and inflammation begin to appear. As the diſorder advances, the pain, heat of urine, and running, increaſe, while freſh ſymptoms daily enſue. In men the erections become painful and involuntary, and are more frequent and laſting than when natural. This ſymptom is moſt troubleſome when the patient is warm in bed. The pain, which was at firſt perceived towards the extremity, now begins to reach the urinary paſſage, and is moſt intenſe juſt after the patient has done making water. The running gradually recedes from the colour of ſeed, grows yellow, and at length puts on the appearance of matter. When the diſorder has arrived at its height, all the ſymptoms are more intenſe; the heat of urine is ſo great that the patient dreads the making water, and, though he feels a conſtant inclination this way, yet it is rendered with the greateſt difficulty, and often only by drops: the involuntary erections now become extremely painful and frequent; there is alſo a pain, heat, and ſenſe of fulneſs, about the ſeat; and the running is plentiful and ſharp, of a brown greeniſh, and ſometimes of a bloody, colour.

CURE.

CURE.—When a perſon has reaſon to ſuſpect that he has caught the venereal infection, he ought moſt ſtrictly to obſerve a cooling regimen, to avoid every thing of a heating nature, as wines, ſpirituous liquors, rich ſauces, ſpiced, ſalted, high-ſeaſoned, and ſmoke-dried, proviſions, &c. as alſo all aromatic and ſtimulating vegetables, as onions, garlic, ſhallot, nutmeg, muſtard, cinnamon, mace, ginger, and ſuch like. His food ought chiefly to conſiſt of mild vegetables, milk, broths, light puddings, panada, gruels, &c. His drink may be barley water, milk and water, decoctions of marſh-mallows and liquorice, linſeed-tea, or clear whey. Of theſe he ought to drink plentifully. Violent exerciſe of all kinds, eſpecially riding on horſeback, and venereal pleaſures, are to be avoided. The patient muſt beware of cold, and, when the inflammation is violent, he ought to keep his bed. A virulent gonorrhœa cannot always be cured ſpeedily and effectually at the ſame time. The patient ought therefore not to expect, nor the phyſician to promiſe, it. It will often continue for two or three weeks, and ſometimes for five or ſix, even where the treatment has been very proper. Sometimes indeed a ſlight infection may be carried off in a few days by bathing the parts in warm milk and water, and injecting frequently up the urethra a little ſweet oil or linſeed-tea about the warmth of new milk. Should theſe not ſucceed in carrying off the infection, they will at leaſt have a tendency to leſſen its virulence. To effect a cure, however, aſtringent injections will generally be found neceſſary. Theſe may be various ways prepared, but thoſe made with the white vitriol are both moſt ſafe and efficacious. They can be made ſtronger or weaker as circumſtances may require, but it is beſt to begin with the more gentle, and increaſe their power, if neceſſary. A dram of white vitriol may be diſſolved in eight or nine ounces of common or roſe water, and an ordinary ſyringe full of it thrown up three or four times a-day. If this quantity does not perform a cure, it may be repeated and the doſe increaſed. Whether injections be uſed or not, cooling purges are always proper in the gonorrhœa. They ought not however to be of the ſtrong or draſtic kind. Whatever raiſes a violent commotion in the body increaſes the danger, and tends to drive the diſeaſe deeper into the habit. Procuring two or three ſtools every ſecond or third day for the firſt fortnight, and the ſame number every fourth or fifth day for the ſecond, will generally be ſufficient to remove the inflammatory ſymptoms, to diminiſh the running, and to change the colour and conſiſtence of the matter, which gradually becomes more clear and ropy as the virulence abates. When the inflammatory ſymptoms run high, bleeding is always neceſſary at the beginning. This operation, as in other topical inflammations, muſt be repeated according to the ſtrength and conſtitution of the patient, and the vehemence and urgency of the ſymptoms. Medicines which promote the ſecretion of urine are likewiſe proper in this ſtage of the diſorder. For this

this purpoſe an ounce of nitre and two ounces of gum-arabic, pounded together, may be divided into twenty-four doſes, one of which may be taken frequently, in a cup of the patient's drink. If theſe ſhould make him paſs his urine ſo often as to become troubleſome to him, he may either take them leſs frequently, or leave out the nitre altogether, and take equal parts of gum-arabic and cream of tartar. Theſe may be pounded together, and a tea-ſpoonful taken in a cup of the patient's drink four or five times a-day. I have generally found this anſwer extremely well, both as a diuretic, and for keeping the body gently open. When the pain and inflammation are ſeated high, towards the neck of the bladder, it will be proper frequently to throw up an emollient clyſter, which beſides the benefit of procuring ſtools, will ſerve as fomentations to the inflamed parts. Soft poultices, when they can be conveniently applied to the parts, are of great ſervice. They may he made of the flour of linſeed, or of wheat-bread and milk, ſoftened with freſh butter or ſweet oil. When poultices cannot be conveniently uſed, cloths wrung out of warm water, or bladders filled with warm milk and water, may be applied. Few things tend more to keep off inflammation in the ſpermatic veſſels than a proper truſs for the ſcrotum. It ought to be ſo contrived as to ſupport the teſticles, and ſhould be worn from the firſt appearance of the diſeaſe till it has ceaſed ſome weeks. Many people, on the firſt appearance of a gonorrhœa, fly to the uſe of mercury. This is a bad plan. Mercury is often not at all neceſſary in a gonorrhœa, and, when taken too early, it does miſchief. It may be neceſſary to complete the cure, but it never can be proper at the commencement of it. When bleeding, purging, fomentations, and the other things recommended above, have eaſed the pain, ſoftened the pulſe, relieved the heat of urine, and rendered the involuntary erections leſs frequent, the patient may begin to uſe mercury in any form that is leaſt diſagreeable to him. If he takes the common mercurial pill, two at night and one in the morning will be a ſufficient doſe at firſt. Should they affect the mouth too much, the doſe muſt be leſſened; if not at all, it may be gradually increaſed to five or ſix pills in the day. If calomel be thought preferable, two or three grains of it, formed into a bolus with a little of the conſerve of hips, may be taken at bed-time, and the doſe gradually increaſed to eight or ten grains. One of the moſt common preparations of mercury now in uſe is the corroſive ſublimate. This may be taken in the manner hereafter recommended under the confirmed lues or pox: it is one of the moſt ſafe and efficacious medicines when properly uſed. The above medicines may either be taken every day or every other day, as the patient is able to bear them. They ought never to be taken in ſuch quantity as to raiſe a ſalivation, unleſs in a very ſlight degree. The diſeaſe may be more ſafely, and as certainly, cured without a ſalivation as with it. When the mercury runs off by the mouth, it is not ſo ſucceſsful

in carrying off the diſeaſe, as when it continues longer in the body, and is diſcharged gradually. Should the patient be purged or griped in the night by the mercury, he muſt take an infuſion of ſenna, or ſome other purgative, and drink freely of water-gruel to prevent bloody ſtools, which are very apt to happen ſhould the patient catch cold, or if the mercury has not been duly prepared. When the bowels are weak, and the mercury is apt to gripe or purge, theſe diſagreeable conſequences may be prevented by taking, with the above pills or bolus, half a dram or two ſcruples of diaſcordium, or of the Japonic confection. To prevent, the diſagreeable circumſtances of the mercury's affecting the mouth too much, or bringing on a ſalivation, it may be combined with purgatives. With this view the laxative mercurial pill has been contrived, the uſual doſe of which is half a dram, or three pills, night and morning, to be repeated every other day; but the ſafer way is for the patient to begin with two, or even with one, pill, gradually increaſing the doſe. To ſuch perſons as can neither ſwallow a bolus nor a pill, mercury may be given in a liquid form, as it can be ſuſpended even in a watery vehicle, by means of gum arabic; which not only ſerves this purpoſe, but likewiſe prevents the mercury from affecting the mouth, and renders it in many reſpects a better medicine: Take quickſilver one dram; gum-arabic reduced to a mucilage in a marble mortar, until the globules of mercury entirely diſappear: afterwards add gradually, ſtill continuing the trituration, half an ounce of balſamic ſyrup, and eight ounces of ſimple cinnamon-water: two table-ſpoonfuls of this ſolution may be taken night and morning. It happens very fortunately for thoſe who cannot be brought to take mercury inwardly, and likewiſe for perſons whoſe bowels are too tender to bear it, that an external application of it anſwers equally well, and, in ſome reſpects, better. It muſt be acknowledged, that mercury, taken inwardly for any length of time, greatly weakens and diſorders the bowels; for which reaſon, when a plentiful uſe of it becomes neceſſary, we would prefer rubbing to the mercurial pills. The common mercurial or blue ointment will anſwer very well. Of that which is made by rubbing together equal quantities of hog's-lard and quickſilver, about a dram may be uſed at a time. The beſt time for rubbing it on is at night, and the moſt proper place is the inner ſide of the thighs. The patient ſhould ſtand before the fire when he rubs, and ſhould wear flannel drawers next his ſkin at the time he is uſing the ointment. If ointment of a weaker or ſtronger kind be uſed, the quantity muſt be increaſed or diminiſhed in proportion. If, during the uſe of the ointment, the inflammation of the genital parts, together with the heat and feveriſhneſs, ſhould return, or if the mouth ſhould grow ſore, the gums tender, and the breath become offenſive, a doſe or two of Glauber's ſalts, or ſome other cooling purge, may be taken, and the rubbing intermitted for a few days. As ſoon, however, as the ſigns of ſpitting

ting are gone off, if the virulency be not quite corrected, the ointment muſt be repeated, but in ſmaller quantities, and at longer intervals, than before. Whatever way mercury is adminiſtered, its uſe muſt be perſiſted in as long as any virulency is ſuſpected to remain. When the above treatment has removed the heat of urine, and ſoreneſs of the genital parts; when the quantity of running is conſiderably leſſened, without any pain or ſwelling in the groin or teſticle ſupervening; when the patient is free from involuntary erections; and laſtly when the running becomes pale, whitiſh, thick, void of ill ſmell, and tenacious or ropy; when all or moſt of theſe ſymptoms appear, the gonorrhœa is arrived at its laſt ſtage, and we may gradually proceed to treat it as a gleet with aſtringent and agglutinating medicines.

Of GLEETS.

A GONORRHŒA frequently repeated, or improperly treated, often ends in a gleet, which may either proceed from relaxation, or from ſome remains of the diſeaſe. It is, however, of the greateſt importance, in the cure of the gleet, to know from which of theſe cauſes it proceeds. When the diſcharge proves very obſtinate, and receives little or no check from aſtringent remedies, there is ground to ſuſpect that it is owing to the latter; but, if the drain is inconſtant, and is chiefly obſervable when the patient is ſtimulated by laſcivious ideas, or upon ſtraining to go to ſtool, we may reaſonably conclude that it is chiefly owing to the former. In the cure of a gleet proceeding from relaxation, the principal deſign is to brace, and reſtore a proper degree of tenſion to, the debilitated and relaxed veſſels. For this purpoſe, beſides the medicines recommended in the gonorrhœa, the patient may have recourſe to ſtronger and more powerful aſtringents, as the Peruvian bark, alum, vitriol, galls, tormentil, biſtort, balauſtines, tincture of gum-kino, &c. The injections may be rendered more aſtringent by the addition of a few grains of alum, or increaſing the quantity of vitriol as far as the parts are able to bear it. The laſt remedy which we ſhall mention in this caſe is the cold bath, than which there is not perhaps a more powerful bracer in the whole compaſs of medicine. It ought never to be omitted in this ſpecies of gleet, unleſs there be ſomething in the conſtitution of the patient which renders the uſe of it unſafe. The chief objections to the uſe of the cold bath are, a full habit, and an unſound ſtate of the viſcera. The danger from the former may always be leſſened, if not removed, by purging and bleeding; but the latter is an inſurmountable obſtacle, as the preſſure of the water, and the ſudden contraction of the external veſſels, by throwing the blood with too much force upon the internal parts, are apt to occaſion ruptures of the veſſels, or a flux of humours upon the diſeaſed organs. But, where no objection of this kind prevails, the patient ought to plunge over

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head in water every morning faſting, for three or four weeks together. He ſhould not, however, ſtay long in the water, and ſhould take care to have his ſkin dried as ſoon as he comes out. The regimen proper in this caſe is the ſame as was mentioned in the laſt ſtage of the gonorrhœa: the diet muſt be drying and aſtringent, and the drink, Spa, Pyrmont, or Briſtol, waters, with which a little claret or red wine may ſometimes be mixed. Any perſon may now afford to drink theſe waters, as they can every where be prepared at almoſt no expence by a mixture of common chalk and oil of vitriol. When the gleet does not yield to theſe medicines, there is reaſon to ſuſpect that it proceeds from ulcers. In this caſe, recourſe muſt be had to mercury, and ſuch medicines as tend to correct any predominant acrimony with which the juices may be affected, as the decoction of china, ſaſaparilla, ſaſſafras, or the like. The beſt remedy for the cure of ulcers in the urinary paſſage, are the ſuppurating candles or bougies; as theſe are prepared various ways, and are generally to be bought ready-made, it is needleſs to ſpend time in enumerating the different ingredients of which they are compoſed, or teaching the manner of preparing them: before a bougie be introduced into the urethra, however, it ſhould be ſmeared all over with ſweet oil to prevent it from ſtimulating too ſuddenly; it may be ſuffered to continue in from one to ſeven or eight hours, according as the patient can bear it. Obſtinate ulcers are not only often healed, but tumours and excreſcences in the urinary paſſages taken away, and an obſtruction of urine removed, by means of bougies.

Of the SWELLED TESTICLE.

THE ſwelled teſticle may either proceed from infection lately contracted, or from the venereal poiſon lurking in the blood: the latter indeed is not very common, but the former frequently happens both in the firſt and ſecond ſtages of a gonorrhœa; particularly when the running is unſeaſonably checked, by cold, hard drinking, ſtrong draſtic purges, violent exerciſe, the too early uſe of aſtringent medicines, or the like. In the inflammatory ſtage bleeding is neceſſary, which muſt be repeated according to the urgency of the ſymptoms. The food muſt be light, and the drink diluting. High-ſeaſoned food, fleſh, wines, and every thing of a heating nature, are to be avoided. Fomentations are of ſingular ſervice. Poultices of bread and milk, ſoftened with freſh butter or oil, are likewiſe very proper, and ought conſtantly to be applied when the patient is in bed: when he is up, the teſticle ſhould be kept warm, and ſupported by a bag or truſs, which may eaſily be contrived in ſuch a manner as to prevent the weight of the teſticle from having any effect. If it ſhould be found impracticable to clear the teſticle by the cooling regimen now pointed out, and extended according to circumſtances, it will be neceſſary to lead the patient through ſuch a complete anti-venereal courſe as ſhall enſure him

againſt any future uneaſineſs. For this purpoſe, beſides rubbing the mercurial ointment on the part, if free from pain, or on the thighs, as directed in the gonorrhœa, the patient muſt be confined to bed, if neceſſary, for five or ſix weeks, ſuſpending the teſticle all the while with a bag or truſs, and plying him inwardly with ſtrong decoctions of ſarſaparilla. When theſe means do not ſucceed, and there is reaſon to ſuſpect a ſcrophulous or cancerous habit, either of which may ſupport a ſchirrhous induration, after the venereal poiſon is corrected, the parts ſhould be fomented daily with a decoction of hemlock, the bruiſed leaves of which may likewiſe be added to the poultice, and the extract at the ſame time taken inwardly. By this method diſeaſed teſticles of two or three years ſtanding, even when ulcerated, and affected with pricking and lancing pains, have been completely cured.

Of BUBOES.

VENEREAL buboes are hard tumours ſeated in the groin, occaſioned by the venereal poiſon lodged in this part. They are of two kinds; viz. ſuch as proceed from a recent infection, and ſuch as accompany a confirmed lues. The cure of recent buboes, that is, ſuch as appear ſoon after impure coition, may be firſt attempted by diſperſion; and, if that ſhould not ſucceed, by ſuppuration. To promote the diſperſion of a bubo, the ſame regimen muſt be obſerved as was directed in the firſt ſtage of a gonorrhœa. The patient muſt likewiſe be bled, and take ſome cooling purges, as the decoctions of tamarinds and ſenna, Glauber's ſalts, and the like. If, by this courſe, the ſwelling and other inflammatory ſymptoms abate, we may ſafely proceed to the uſe of mercury, which muſt be continued till the venereal virus is quite ſubdued. But, if the bubo ſhould, from the beginning, be attended with great heat, pain, and pulſation, it will be proper to promote its ſuppuration. For this purpoſe the patient may be allowed to uſe his ordinary diet, and to take now and then a glaſs of wine. Emollient cataplaſms, conſiſting of bread and milk ſoftened with oil or freſh butter, may be applied to the part; and, in cold conſtitutions, where the tumour advances ſlowly, white-lily roots boiled, or ſliced onions raw, and a ſufficient quantity of yellow baſilicon, may be added to the poultice. When the tumour is ripe, which may be known by its conical figure, the ſoftneſs of the ſkin, and a fluctuation of matter plainly to be felt under the finger, it may be opened either by cauſtic or a lancet, and afterwards dreſſed with digeſtive ointment. It ſometimes, however, happens that buboes can neither be diſperſed nor brought to a ſuppuration, but remain hard indolent tumours. In this caſe the indurated glands muſt be conſumed by cauſtic; if they ſhould become ſcirrhous, they muſt be diſſolved by the application of hemlock, both externally and internally, as directed in the ſcirrhous teſticle.

Of CHANCRES.

CHANCRES are ſuperficial, callous, eating, ulcers; which may happen either with or without a gonorrhœa. They are commonly ſeated about the glans, and make their appearance in the following manner: Firſt a little red pimple ariſes, which ſoon becomes pointed at top, and is filled with a whitiſh matter inclining to yellow. This pimple is hot, and itches generally before it breaks: afterwards it degenerates into an obſtinate ulcer, the bottom of which is uſually covered with a viſcid mucus, and whoſe edges gradually become hard and callous. Sometimes the firſt appearance reſembles a ſimple excoriation of the cuticle; which, however, if the caſe be venereal, ſoon becomes a true chancre. A chancre is ſometimes a primary affection, but it is much oftener ſymptomatic, and is the mark of a confirmed lues. Primary chancres diſcover themſelves ſoon after impure coition, and are generally ſeated in parts covered with a thin cuticle, as the lips, the nipples of women, the *glans penis* of men, &c. When venereal ulcers are ſeated in the lips, the infection may be communicated by kiſſing. When a chancre appears ſoon after impure coition, its treatment is nearly ſimilar to that of the virulent gonorrhœa. The patient muſt obſerve the cooling regimen, loſe a little blood, and take ſome gentle doſes of ſalts and manna. The parts affected ought frequently to be bathed, or rather ſoaked, in warm milk and water; and, if the inflammation be great, an emollient poultice or cataplaſm may be applied to them. This courſe will, in moſt caſes, be ſufficient to abate the inflammation, and prepare the patient for the uſe of mercury. Symptomatic chancres are commonly accompanied with ulcers in the throat, nocturnal pains, ſcurfy eruptions about the roots of the hair, and other ſymptoms of a confirmed lues. Though they may be ſeated in any of the parts mentioned above, they commonly appear upon the private parts, or the inſide of the thigh. They are alſo leſs painful, but frequently much larger and harder, than primary chancres. This diſorder is uſually attended with a ſtrangury or obſtruction of urine, a phymoſis, &c. A ſtrangury may be occaſioned either by a ſpaſmodic conſtriction, or an inflammation of the urethra and parts about the neck of the bladder. In the former caſe, the patient begins to void the urine with tolerable eaſe; but, as ſoon as it touches the galled or inflamed urethra, a ſudden conſtriction takes place, and the urine is voided by ſpirts, and ſometimes by drops only. When the ſtrangury is owing to an inflammation about the neck of the bladder, there is a conſtant heat and uneaſineſs of the part, a perpetual deſire to make water, while the patient can only render a few drops, and a troubleſome teneſmus, or conſtant inclination to go to ſtool. When the ſtrangury is owing to ſpaſm, ſuch medicines as tend to dilute and blunt the ſalts of the urine will be proper. For this purpoſe,

beſides

beſides the common diluting liquors, ſoft and cooling emulſions, ſweetened with the ſyrup of poppies, may be uſed. Should theſe not have the deſired effect, bleeding, and emollient fomentations, will be neceſſary. When the complaint is evidently owing to an inflammation about the neck of the bladder, bleeding muſt be more liberally performed, and repeated according to the urgency of the ſymptoms. After bleeding, if the ſtrangury ſtill continues, ſoft clyſters, with a proper quantity of laudanum in them, may be adminiſtered, and emollient fomentations applied to the region of the bladder. At the ſame time, the patient may take every four hours a teacup-full of barley water, to an Engliſh pint of which ſix ounces of the ſyrup of marſh-mallows, four ounces of the oil of ſweet almonds, and half an ounce of nitre, may be added. If theſe remedies ſhould not relieve the complaint, and a total ſuppreſſion of urine ſhould come on, bleeding muſt be repeated, and the patient ſet in a warm bath up to the middle. It will be proper, in this caſe, to diſcontinue the diuretics, and to draw off the water with a catheter; but, as the patient is ſeldom able to bear its being introduced, we would rather recommend the uſe of mild bougies. Theſe often lubricate the paſſage, and greatly facilitate the diſcharge of urine. Whenever they begin to ſtimulate or give any uneaſineſs, they may be withdrawn. The phymoſis is ſuch a conſtriction of the prepuce over the glands as hinders it from being drawn backwards; the paraphymoſis, on the contrary, is ſuch a conſtriction of the prepuce behind the glands as hinders it from being brought forwards. The treatment of theſe ſymptoms is ſo nearly the ſame with that of the virulent gonorrhœa, that we have no occaſion to enlarge upon it. In general, bleeding, purging, poultices, and emollient fomentations, are ſufficient. Should theſe, however, fail of removing the ſtricture, and the parts be threatened with a mortification, twenty or thirty grains of ipecacuanha, and one grain of emetic tartar, may be given for a vomit, and may be worked off with warm water and thin gruel. It ſometimes happens, that, in ſpite of all endeavours to the contrary, the inflammation goes on, and ſymptoms of a beginning mortification appear. When this is the caſe, the prepuce muſt be ſcarified with a lancet, and, if neceſſary, divided, in order to prevent a ſtrangulation, and ſet the impriſoned glands at liberty. We ſhall not deſcribe the manner of performing this operation, as it ought always to be done by a ſurgeon. When a mortification has actually taken place, it will be neceſſary, beſides performing the above operations, to foment the parts frequently with cloths wrung out of a ſtrong decoction of camomile-flowers and bark, and to give the patient a dram of the bark in powder every two or three hours. With regard to the priapiſm, chordee, and other diſtortions of the penis, their treatment is no way different from that of the gonorrhœa. When they prove very troubleſome, the patient may take a few drops of laudanum at night, eſpecially after the operation of a purgative through the day.

Of a CONFIRMED LUES.

THE ſymptoms of a confirmed lues are, buboes in the groin, pains of the head and joints, which are peculiarly troubleſome in the night, or when the patient is warm in bed; ſcabs and ſcurfs in various parts of the body, eſpecially on the head, of a yellowiſh colour, reſembling a honey-comb; corroding ulcers in various parts of the body, which generally begin about the throat, from whence they creep gradually, by the palate, towards the cartilage of the noſe, which they deſtroy; excreſcences or exoſtoſes ariſe in the middle of the bones, and their ſpongy ends become brittle, and break upon the leaſt accident; at other times, they are ſoft, and bend like wax; the conglobate glands become hard and callous, and form, in the neck, armpits, groin, and meſentery, hard moveable tumours, like the king's evil; tumours of different kinds are likewiſe formed in the lymphatic veſſels, tendons, ligaments, and nerves, as the gummata, ganglia, nodes, tophs, &c. the eyes are affected with itching, pain, redneſs, and ſometimes with total blindneſs, and the ears with a finging noiſe, pain, and deafneſs, whilſt their internal ſubſtance is exulcerated and rendered carious; at length all the animal, vital, and natural, functions, are depraved; the face becomes pale and livid; the body emaciated and unfit for motion, and the miſerable patient falls into an atrophy or waſting conſumption. Women have ſymptoms peculiar to their ſex; as cancers of the breaſt, a ſuppreſſion or overflowing of the menſes, the whites, hyſteric affections, an inflammation, abceſs, ſcirrhus, gangrene, cancer, or ulcer, of the womb; they are generally either barren or ſubject to abortion; or, if they bring children into the world, they have an univerſal eryſipelas, are half rotten, and covered with ulcers. Such is the catalogue of ſymptoms attending this dreadful diſeaſe in its confirmed ſtate. Indeed they are ſeldom to be met with in the ſame perſon, or at the ſame time; ſo many of them, however, are generally preſent as are ſufficient to alarm the patient; and, if he has reaſon to ſuſpect the infection is lurking in his body, he ought immediately to ſet about the expulſion of it, otherwiſe the moſt tragical conſequences will enſue. The only certain remedy hitherto known in Europe for the cure of this diſeaſe is mercury, which may be uſed in a great variety of forms, with nearly the ſame ſucceſs. Some time ago it was reckoned impoſſible to cure a confirmed lues without ſalivation; this method is now, however, pretty generally laid aſide, and mercury is found to be as efficacious, or rather more ſo, in expelling the venereal poiſon, when adminiſtered in ſuch a manner as not to run off by the ſalivary glands. The only chemical preparation of mercury which we ſhall take notice of is the corroſive ſublimate. This was ſome time ago brought into uſe for the venereal diſeaſe in Germany, by the illuſtrious Baron Van Swieten; and was ſoon after

introduced into Britain by the learned Sir John Pringle, at that time phyſician to the army. The method of giving it is as follows: One grain of corroſive ſublimate is diſſolved in two ounces of French brandy or malt ſpirits; and of this ſolution, an ordinary tableſpoon-full, or the quantity of half an ounce, is to be taken twice a-day, and to be continued as long as any ſymptoms of the diſorder remain. To thoſe whoſe ſtomach cannot bear the ſolution, the ſublimate may be given in form of pills. Several roots, woods, and barks, have been recommended for curing the venereal diſeaſe: but, though none of them, when adminiſtered alone, have been found, upon experience, to anſwer the high encomiums which have been beſtowed upon them, yet, when joined with mercury, many of them are found to be very beneficial in promoting a cure. The beſt we know yet are ſarſaparilla and the mezereon root, which are powerful aſſiſtants to the ſublimate or to any other mercurial. Thoſe who chuſe to uſe the mezereon by itſelf, may boil an ounce of the freſh bark taken from the root, in twelve Engliſh pints of water to eight, adding towards the end an ounce of liquorice. The doſe of this is the ſame as of the decoction of ſarſaparilla. We have been told that the natives of America cure the venereal diſeaſe, in every ſtage, by a decoction of the root of a plant called the lobelia. It is uſed either freſh or dried: but we have no certain accounts with regard to the proportion. Sometimes they mix other roots with it, as thoſe of the ranunculus, the ceanothus, &c. but whether theſe are deſigned to diſguiſe or aſſiſt it, is doubtful. The patient takes a large draught of the decoction early in the morning, and continues to uſe it for his ordinary drink through the day. Many other roots and woods are highly extolled for curing the venereal diſeaſe, as the roots of ſoap-wort, burdock, &c. as alſo the wood of guaiacum and ſaſſafras; but, being particularly pointed out in the Herbal, we ſhall, for the ſake of brevity, paſs them over in this place, with only remarking, that, though we are ſtill very much in the dark with regard to the method of curing this diſeaſe among the natives of America, yet it is well known, that they do cure it with ſpeed, ſafety, and ſucceſs, by the uſe of vegetables only, and that without the leaſt knowledge of mercury. Hence it becomes an object of conſiderable importance to diſcover a method of cure in this iſland, by the uſe of vegetables only, by making trial of all the various plants which are found in it, and particularly ſuch as Culpeper was known to make uſe of with ſingular ſucceſs, and which he has diſtinguiſhed in the Herbal. Indeed there can be no doubt, but plants of our own growth, were proper pains taken to diſcover them, would be found as efficacious in curing the venereal diſeaſe here, as thoſe of America there; for it muſt be remembered that what will cure a patient of the venereal diſeaſe in one country will not have equal ſucceſs if carried into another; a plain demonſtration that every country produces that which is moſt congenial to the health of its own native inhabitants.

Mercury ought not to be adminiſtered to women in the menſtrual flux, or when the period is near at hand. Neither ſhould it be given in the laſt ſtage of pregnancy. If, however, the woman be not near the time of her delivery, and circumſtances render it neceſſary, mercury may be given, but in ſmaller doſes, and at greater intervals than uſual: with theſe precautions, both the mother and child may be cured at the ſame time; if not, the diſorder will at leaſt be kept from growing worſe, till the woman be brought to bed, and ſufficiently recovered, when a more effectual method may be purſued, which, if ſhe ſuckles her child, will in all probability be ſufficient for the cure of both. Mercury ought always to be adminiſtered to infants with the greateſt caution. Their tender condition unfits them for ſupporting a ſalivation, and makes it neceſſary to adminiſter even the mildeſt preparations of mercury to them with a ſparing hand. A ſimilar conduct is recommended in the treatment of old perſons, who have the misfortune to labour under a confirmed lues. No doubt the infirmities of age muſt render people leſs able to undergo the fatigues of a ſalivation; but this, as was formerly obſerved, is never neceſſary; beſides, we have generally found, that mercury had much leſs effect upon very old perſons than on thoſe who were younger. The moſt proper ſeaſons for entering upon a courſe of mercury, are the ſpring and autumn, when the air is of a moderate warmth; if the circumſtances of the caſe, however, will not admit of delay, we muſt not defer the cure on account of the ſeaſon, but muſt adminiſter the mercury; taking care, at the ſame time, to keep the patient's chamber warmer or cooler, according as the ſeaſon of the year requires. A proper regimen muſt be obſerved by ſuch as are under a courſe of mercury. Inattention to this not only endangers the patient's life, but often alſo diſappoints him of a cure. A much ſmaller quantity of mercury will be ſufficient for the cure of a perſon who lives low, keeps warm, and avoids all manner of exceſs, than of one who cannot endure to put the ſmalleſt reſtraint upon his appetites: indeed it but rarely happens that ſuch are thoroughly cured. There is hardly any thing of more importance; either for preventing or removing the venereal infection, than cleanlineſs. By an early attention to this, the infection might often be prevented from entering the body; and, where it has already taken place, its effects may be greatly mitigated. The moment any perſon has reaſon to ſuſpect that he has received the infection, he ought to waſh the parts with water and ſpirits, ſweet oil, or milk and water; a ſmall quantity of the laſt may likewiſe be injected up the urethra, if it can be conveniently done. Whether this diſeaſe at firſt took its riſe from dirtineſs is hard to ſay; but wherever that prevails, the infection is found in its greateſt degree of virulence, which gives ground to believe that a ſtrict attention to cleanlineſs would go far towards extirpating it altogether.

DISEASES OF WOMEN.

IN all civilized nations women have the management of domeſtic affairs; and it is very proper they ſhould, as nature has made them leſs fit for the more active and laborious employments. This indulgence, however, is often carried too far; and females, inſtead of being benefited by it, are greatly injured, from the want of exerciſe and free air. To be ſatisfied of this, one need only compare the freſh and ruddy looks of a milk-maid with the pale complexion of thoſe females whoſe whole time is ſpent within doors. Though nature has made an evident diſtinction between the male and female with regard to bodily ſtrength and vigour, yet ſhe certainly never meant, either that the one ſhould be always without, or the other always within, doors. The confinement of females, beſides hurting their figure and complexion, relaxes their ſolids, weakens their minds, and diſorders all the functions of the body. Hence proceed obſtructions, indigeſtion, flatulence, abortions, and the whole train of nervous diſorders. Theſe not only unfit women for being mothers and nurſes, but often render them whimſical and ridiculous. A ſound mind depends ſo much upon a healthy body, that, where the latter is wanting, the former is rarely to be found. Women who are chiefly employed without doors, in the different branches of huſbandry, gardening, and the like, are almoſt as hardy as their huſbands; and their children are likewiſe ſtrong and healthy. But, as the bad effects of confinement and inactivity upon both ſexes have been already ſhown, we ſhall proceed to point out thoſe circumſtances in the ſtructure and deſign of females, which ſubject them to peculiar diſeaſes; the chief of which are, their monthly evacuations, pregnancy, child-bearing, &c. Theſe indeed cannot properly be called diſeaſes; but, from the delicacy of the ſex, and their being often improperly managed in ſuch ſituations, they become the ſource of numerous calamities.

OF THE MENSTRUAL DISCHARGE.

FEMALES generally begin to menſtruate about the age of fifteen, and leave it off about fifty, which renders theſe two periods the moſt critical of their lives. About the firſt appearance of this diſcharge, the conſtitution undergoes a very conſiderable change, generally indeed for the better, though ſometimes for the worſe. The greateſt care is therefore neceſſary, as the future health and happineſs of the female depends, in a great meaſure, upon her conduct at this period. It is the duty of mothers, and thoſe who are intruſted with the education of girls, to inſtruct them early in the conduct and management of themſelves at this critical period of their lives. Falſe modeſty, inattention, and ignorance of what is beneficial or hurtful at this time, are the ſources of many diſeaſes and misfortunes in life, which a few ſenſible

ſible leſſons from an experienced matron might have prevented. Nor is care leſs neceſſary in the ſubſequent returns of this diſcharge. Taking improper food, violent affections of the mind, or catching cold at this period, is often ſufficient to ruin the health, or to render the female ever after incapable of procreation. If a girl about this time of life be confined to the houſe, kept conſtantly ſitting, and neither allowed to romp about, nor employed in any active buſineſs, which gives exerciſe to the whole body, ſhe becomes weak, relaxed, and puny; her blood not being duly prepared, ſhe looks pale and wan; her health, ſpirits, and vigour, decline, and ſhe ſinks into a valetudinary for life. Such is the fate of numbers of thoſe unhappy females, who, either from too much indulgence, or their own narrow circumſtances, are, at this critical period, denied the benefit of exerciſe and free air. A lazy indolent diſpoſition proves likewiſe very hurtful to girls at this period. One ſeldom meets with complaints from obſtructions amongſt the more active and induſtrious part of the ſex: whereas the indolent and lazy are ſeldom free from them. Theſe are, in a manner, eaten up by the *chloroſis*, or green ſickneſs, and other diſeaſes of this nature. We would therefore recommend it to all who wiſh to eſcape theſe calamities, to avoid indolence and inactivity as their greateſt enemies, and to be as much abroad in the open air as poſſible. After the menſes have once begun to flow, the greateſt care ſhould be taken to avoid every thing that may tend to obſtruct them. Cold is extremely hurtful at this particular period. More of the ſex date their diſorders from cold caught while they are out of order, than from all other cauſes. This ought ſurely to put them upon their guard, and to make them very circumſpect in their conduct at ſuch times. A degree of cold that will not in the leaſt hurt them at another time, will, at this period, be ſufficient to ruin their health and conſtitution; therefore, from whatever cauſe this flux is obſtructed, except in a ſtate of pregnancy, proper means ſhould be immediately uſed to reſtore it. But the menſtrual flux may be too great as well as too ſmall. When this happens, the patient becomes weak, the colour pale, the appetite and digeſtion are bad, and œdematous ſwellings of the feet, dropſies, and conſumptions, often enſue. To reſtrain the flux, the patient ſhould be kept quiet and eaſy both in body and mind. If it be very violent, ſhe ought to lie in bed with her head low; to live upon a cool and ſlender diet, as veal or chicken broths with bread; and to drink decoctions of nettle-roots, or the greater comfrey. If theſe be not ſufficient to ſtop the flux, ſtronger aſtringents may be uſed, as Japan earth, alum, elixir of vitriol, the Peruvian bark, &c. Two drams of alum and one of Japan earth may be pounded together, and divided into eight or nine doſes, one of which may be taken three times a-day. Perſons whoſe ſtomachs cannot bear the alum, may take two tableſpoon-fulls of the tincture of roſes three or four times a-day, to each doſe of which ten drops of lauda-

num may be added. If theſe ſhould fail, half a dram of the Peruvian bark in powder, with ten drops of the elixir of vitriol, may be taken in a glaſs of red wine four times a-day. That period of life at which the menſes ceaſe to flow is likewiſe very critical to the ſex. The ſtoppage of any cuſtomary evacuation, however ſmall, is ſufficient to diſorder the whole frame, and often to deſtroy life itſelf. Hence it comes to paſs, that ſo many women either fall into chronic diſorders, or die, about this time. Such of them, however, as will perſevere in taking the Lunar Tincture previous to the time their menſes leave them, will become more healthy and hardy than they were before, and enjoy ſtrength and vigour to a very great age.

Of the GREEN SICKNESS.

THE green ſickneſs is an obſtruction in the womb-veſſels of young females, at or about the time of their courſes beginning to flow. It is attended with a viſcidity of all the juices, a ſallow, pale, or greeniſh, colour of the face, a difficulty of breathing, a ſickneſs in the ſtomach at the ſight of proper food, and an unnatural deſire of feeding on ſuch things as are accounted hurtful, and unfit for nouriſhment. It is alſo called by phyſicians the white fever, the love fever, the virgin's diſeaſe, and the white jaundice. It ſometimes ſeems to proceed from an alteration of the fluids about the time that the menſes firſt begin to flow, or from the inaptitude of the veſſels to perform thoſe diſcharges which nature then calls for. It may alſo proceed from an obſtruction in the bowels, or a ſluggiſh languid motion of the blood, whether natural, or acquired by eaſe, indulgence, or want of exerciſe: and this latter, no doubt, is the caſe, when the diſtemper happens to very young girls, who are not capable of ſuffering any hyſteric diſorder. Finally, it may proceed from a longing deſire after the enjoyment of ſome perſon; or, in general, from a violent inclination to exchange a ſingle life for the ſtate of matrimony; and, when this is the caſe, there is an univerſal dulneſs and diſinclination to exerciſe, and the patient complains of a preſſure or weight, chiefly about the reins and loins. Upon any briſk motion come on a difficulty of breathing, and a tenſion and quick pulſation of the arteries in the temples, which ſeem to beat with great violence; alſo a heavy and frequently a laſting pain of the head, and palpitation of the heart. The pulſe is quick and low, attended with a ſmall feveriſhneſs, and a loſs of the natural appetite; but chalk, coals, ſtones, clay, tobacco-pipes, and other things of like unwholeſome nature, ought to be kept as much as poſſible out of the patient's way; for ſhe generally has more inclination to theſe than to a proper diet. The green ſickneſs is ſeldom dangerous, though it often proves of long continuance; but, when very violent, and too much neglected, proceeding from a ſuppreſſion of the monthly courſes, and attended with the whites, it may

in time bring on weakneſſes, hard ſwellings, and barrenneſs. When it happens ſome time before the menſes ought to appear, and they break forth without obſtruction, it is uſually cured upon this eruption, without farther means. If the whites come after the green ſickneſs has been long fixed, it is held to be a bad ſign; if before, and it happens upon the ſtoppage of the menſtrual flux, it often proves critical: if the courſes flow regularly during the diſtemper, it is accounted a good ſymptom, and there is no danger. To forward a cure, the patient ought to be placed in a thin and clear air, to drink tea, barley-water, and other attenuating liquors, warm, and made agreeable to the palate. Her food ſhould be nouriſhing, but eaſy of digeſtion, and not ſuch as may inflame. Moderate exerciſe every day, ſuch as walking, riding, ſtirring about the houſe, is very ſerviceable, notwithſtanding the difficulty and uneaſineſs that attend it, and the great antipathy of the patient to any ſort of motion. Sleep ought to be moderate, and taken at a due diſtance from meals, not till an hour or two, at leaſt, after ſupper. All paſſions of the mind, eſpecially thoſe of melancholy and deſpair, are highly prejudicial; if the diſeaſe, therefore, be found to proceed from a ſettled inclination after marriage, the parents of the patient ſhould endeavour to provide her a ſuitable match, as the moſt effectual cure; or, if the deſire be after a particular perſon, to let her have him at all events, if they approve her choice. But, if matrimony be not judged convenient for her, either on account of youth or for any other reaſon, they muſt then have recourſe to medical remedies, according to the following directions. If the patient be at all plethoric, that is, if her veins be well ſtored with blood, bleeding will be highly proper to begin the cure; and this is to be ſucceeded by proper purgatives. In ſome caſes, eſpecially when the patient is very young, a vomit is often ſucceſsful, being exhibited before purgation. Thoſe cathartics, that are either mixed along with alterative medicines, or given in ſuch quantities as to make them act as alterants, or lie a conſiderable time in the body before they operate, are uſually very efficacious, and, in weakly conſtitutions, preferable to other purgatives. The following will, in general, be found to perform a cure: Take caſtor, ſaffron, myrrh, black hellebore root, all in powder, each one dram; gum ammoniac, one dram and a half; ſalt of ſteel, four ſcruples; beſt aloes powdered, two drams; oil of cinnamon, fifteen drops; ſyrup of the five roots, a ſufficient quantity. Make ten pills out of every dram, of which let five be taken every night, drinking after them briony-water and penny-royal water, of each two ounces. Theſe are excellent to warm and comfort the nerves, thin the blood and juices, and cauſe them to circulate freely. They muſt be continued regularly for ten or twelve days. And indeed all cathartics of this nature, that are intended to make an alteration in the whole animal ſyſtem, which is often neceſſary in theſe caſes, muſt have much more time to operate than thoſe which are intend-

ed only to purge the inteſtines. When the green ſickneſs proves obſtinate, it is proper to have recourſe to the cold bath, and to the uſe of mineral waters: or an infuſion may be made in lime-water, with chips of guaiacum, ſaſſafras, ſaunders, a little gentian, angelica-root, winter-bark, and Roman wormwood; to which add tincture of ſteel a ſufficient quantity in proportion to the other ingredients; or infuſe filings of ſteel with the woods and roots. This may be drunk inſtead of the chalybeate waters; and will frequently anſwer the ſame purpoſe. Decoctions or other preparations of the Jeſuit's bark, with ſteel, wine, and tinctures of black hellebore and cinnamon, being continued a conſiderable time, are alſo very effectual in lax conſtitutions, and where the juices are viſcid; but, when the green ſickneſs is attended with the whites, nothing is ſo certain a cure as the Lunar Tincture.

Of the FLUOR ALBUS, or WHITES.

THIS diſeaſe may be cauſed by falls, ſprains in the back, purging to exceſs, eſpecially with mercurials, and when the body is weak and lax; or it may be the effects of a venereal infection, which, though cured, leaves the glands and other veſſels in a relaxed ſtate, which is very difficult to repair. The whites come away ſometimes in a large and ſometimes in a ſmall quantity; and it is obſervable, that the running generally increaſes after violent exerciſe, and that it is in greateſt plenty at about the middle of the time between the monthly periods: the matter often proves variable, being ſometimes white mixed with yellow, and at others of a thin wateriſh conſiſtence, greeniſh, and inclining to black; ſharp, corroſive, of an ill ſmell, occaſioning heat of urine, and now and then ulcers. It then cauſes great weakneſs, eſpecially in the ſmall of the back and the loins; a pale colour in the face, faintneſs, loathing of food, indigeſtion, ſwelling of the legs, irregularity in the courſes. Sometimes it degenerates into a conſumption or dropſy, and proves mortal: at others, it cauſes incurable barrenneſs. The urine, under this diſorder, is generally viſcid, thick, and ſlimy, and ſometimes appears as if ſmall threads were mixed in it: nor does it ſettle ſo freely as in other caſes. It has uſually been thought difficult to diſtinguiſh the whites from the venereal diſeaſe; and ſome women, who have had bad huſbands, have laboured under the latter for a long time together, imagining it all the while to be only the former: others have miſtaken a running, occaſioned by an ulcer in the womb, for that diſeaſe. Now, as it is highly neceſſary every woman ſhould learn the ſymptoms by which theſe are known aſunder, let it be obſerved, that, whenever the courſes come down, the whites always ceaſe, and do not trouble the patient again till the courſes are over; whereas a venereal running remains conſtantly upon the patient, appears and does not ceaſe during the monthly diſcharges;

it

it is alſo much leſs in quantity than the whites. As to an ulcer in the womb, it is beſt known by the ſharp and growing pains that it occaſions in the womb from the very beginning of the diſeaſe; whereas in the whites, though ſometimes the humour be ſo ſharp as to cauſe great pain, and even an ulcer, yet this is not till after they have continued long enough on the patient to be diſtinguiſhed by their other ſymptoms. The matter that flows from an ulcer is alſo frequently bloody, which the whites never are. Maids of a weakly conſtitution are often afflicted with this diſtemper, as well as married women and widows; and indeed there are few of the fair ſex, eſpecially ſuch as are any-way ſickly, but who have known it more or leſs, it being often occaſioned by other diſeaſes. For whatever diſeaſe renders the blood poor, foul, or viſcous, and reduces a woman to a languid condition, is commonly ſucceeded by the whites, which, when they come in this manner, continue to weaken the body more and more, and are in great danger, without ſpeedy remedy, of wearing away the patient and making her a miſerable victim to death. Let no woman, therefore, neglect this diſtemper, when ſhe finds it on her, but endeavour to prevent its getting too much a-head. The diet, in the cure of this diſtemper, ought to be nouriſhing, and much the ſame with that preſcribed in conſumptions, conſiſting of broths, boiled with ſhavings of hartſhorn, tormentil-root, biſtort, comfrey, conſerve of red roſes, iſinglaſs, red-roſe flowers, gum-arabic, nutmeg, mace, cinnamon, and other ſtrengthening and agglutinating ingredients. Sago and jellies are alſo ſerviceable in this caſe, particularly that of hartſhorn. Some drink every morning, with very good ſucceſs, a quarter of an ounce of iſinglaſs, diſſolved into a pint of milk, and ſweetened with ſugar. Exerciſe ſhould be moderate, and taken, as much as can be, in a warm and dry air; and the continuance of this for ſome time, with a milk-diet, have been found prevalent, when other means, though the beſt that could be made uſe of, have failed. Bleeding ought here to be omitted, unleſs the perſon be plethoric, or her monthly courſes are obſtructed: for it is not proper to weaken her who is already too weak. Purgatives, however, are held to be proper, but without calomel, eſpecially when the diſeaſe is in its infancy, and appears but in ſmall quantity. But when it is of long ſtanding, and the matter which flows is thin, diſcoloured, and of an ill ſmell; if ulcers are apprehended in the uterus; if any venereal infection has preceded, and part of the virulence is ſtill ſuppoſed to remain; mercurials and other medicines ſuited to virulent caſes are undeniably proper: and the cure here differs little from the cure of the venereal diſeaſe itſelf, only the purges ſhould not be too violent, nor the calomel given in too large doſes. In ſuch caſes, however, a perſeverance in the Solar and Lunar Tinctures alternately, as preſcribed in the Treatiſes round each bottle, may be depended on as the moſt eaſy, ſafe, ſpeedy, and elegant, cure.

Of

Of WEAKNESS contracted before MARRIAGE.

THERE are ſome diſorders contracted by the fair ſex, the cauſe and cure of which are of ſuch a nature, that for ſeveral reaſons, chiefly through ſhame, they are likely to conceal them, and therefore may ſuffer worſe conſequences than can here be deſcribed. To tell, in few words, what I mean by ſuch diſeaſes as are contracted, they are all ſuch as the patient, by a criminal indulgence of her paſſions, has herſelf been inſtrumental in cauſing. For that many of the fair, eſpecially in their younger years, have ſuffered much from a ſecret vice, by which they have endeavoured to procure themſelves thoſe pleaſurable ſenſations which God has ordered to be the effects of a mutual commerce between the ſexes, is a matter of late become too notorious to be doubted, and too dreadful in its conſequences to be indulged in; I mean that abominable vice *onaniſm*, or ſecret vevery. And certainly none of them can take it amiſs if, for their advantage, I venture ſo far to expoſe this practice, as to remove the evil conſequences of it; and to prevent, as much as poſſible, its continuance. The ſecret vice before-mentioned is chiefly a fault of the youth of both ſexes; and nothing is of more importance to the preſervation of human-kind in general, than the endeavouring to prevent a practice that ſtrikes at the very root of fecundity. Among the motives to this crime of ſelf-abuſe, the three following have, I think, with a great deal of juſtice, been aſſigned as the principal. Firſt, ignorance of its nature and conſequences. As to its nature, there is no expreſs prohibition of it; and therefore ſome may unhappily be induced to imagine, when either by ill example, their own laſcivious inclinations, or any accidental cauſe, they have been betrayed into an acquaintance with the practice of it, that there can be no harm in procuring to themſelves that ſenſation, which, in their preſent circumſtances, they cannot otherwiſe acquire, without a manifeſt violation of the national laws, and the hazard of expoſing themſelves to ſhame and infamy. If it were not for this unfortunate miſtake, we have little reaſon to imagine, that perſons otherwiſe pious, and the moſt obſervant of what is ſeemly in other particulars, would be guilty of ſuch an offence, both againſt religion and decency. The caſe of Onan, however, whom God ſlew (ſee Geneſis, chap. xxxviii. ver. 9.) for thus wickedly defeating the purpoſes of generation, may anſwer the end of a precept, and witneſs the divine deteſtation of this kind of uncleanneſs. Nor is this example leſs applicable to women than it is to men, ſince we ſhall ſhow in the following inſtances, that they are as capable to render themſelves unapt, by ſimilar practices, for the buſineſs of procreation. And, as to its conſequences, they are no leſs fatal to this ſex than to the other, as will be abundantly ſhown in the ſame inſtances. The ſecrecy with which this crime may be committed, is a ſecond inducement to it. There muſt be another

party in all other acts of uncleanneſs; but, in this, there is neither partaker nor witneſs. And this, above all other motives, ſeems to have been the moſt dangerous to women in particular, who are naturally more baſhful than men, and whom cuſtom alone has precluded from making any advances towards a mutual commerce with the other ſex. Thirdly, there is no ſpecific puniſhment to deter from this practice; but every one, who will, commits it with impunity. Adultery, in many countries, is puniſhed with death; and, with us, it ſubjects a man to pecuniary fines, and inflicts eternal infamy on the woman who is known to be guilty of it. Even fornication, though regarded with leſs ſeverity, is yet moſt ſcandalous to the fair ſex in particular; eſpecially when they bring into the world, as the fruit of it, a living witneſs of their crime. But for ſelf-abuſe, there is no infliction, no other puniſhment, but ſelf-conſciouſneſs. And, indeed, how can there be any other? The very nature of it, which renders it ſecure againſt detection, would fruſtrate any proviſion that could be made in this caſe by the legiſlature. And, beſides this ſecurity from legal animadverſion, it is ſafe from the conſequence which ſingle women muſt fear in their commerce with men, that of becoming pregnant. I might add, that ſome give into this way out of caution. They are loth to truſt their fortunes and prerogatives in the hands of a man, and therefore will not marry; and, as to unlawful embraces, they dare not venture on them for many reaſons. But I proceed to ſhow, that there can be no excuſe for a practice, which, beſides its wickedneſs, is the moſt prejudicial that can be to the human conſtitution. Its bad effects on the body are many and great. If practiſed often, it relaxes and ſpoils the retentive faculty. It occaſions the whites in women, and gleets in men. It ruins the complexion, and makes them pale, ſwarthy, and hagged. It produces a long train of hyſteric diſorders; and ſometimes, by draining away the radical moiſture, induces conſumptions. It brings on heats in the privities, belly, and thighs, with ſhooting pains in the head, and all over the body. It ſometimes brings on that fatal malady, a *furor uterinus*, or unſatiable appetite to venery. But what it is moſt liable to produce is barrenneſs, by cauſing an indifference to the pleaſures of Venus, and, in time, a total inability or inaptitude to the act of generation itſelf. Virgins, who indulge themſelves over eagerly in this abuſe of their bodies, deflower themſelves, and deſtroy the valuable badge of their chaſtity, which it is expected they ſhould not part with before marriage; but which, when loſt, can never be retrieved. With regard to maids, who have hereby deprived themſelves of that ſacred badge, the loſs of which, before marriage, was ſo ſeverely puniſhed among the Jews; under what apprehenſions muſt they continually lie!—with what terrors muſt they approach the marriage-bed, which heaven has deſigned for the ſeat of the higheſt ſenſible enjoyment!—when they reflect that their virtue, on the firſt amorous encounter, is liable to ſuch ſuſpicions as may never be worn off, but which may render uncomfortable the whole life, both of her and her otherwiſe affectionate

affectionate husband! But, besides this disgrace, suppose women have actually entered with reputation in all other respects on the conjugal state, how must it grieve them, when they find the ends of it unanswered, and have room to charge their inaptitude to procreation on their own fault! Both husband and wife, perhaps, may be passionately desirous of issue; and the good man may think it a defect in himself, that their nuptial embraces are perpetually fruitless. But where a woman can charge herself with such a course of self-abuse, as hath sensibly weakened and debilitated her organs of generation, hath she not all the room in the world to be for ever unhappy, in the remembrance of her folly and wickedness; and to believe, with justice, that another woman in her case would not be infertile? How much more tormenting must it be, if, besides her having rendered ineffectual the use of the marriage-bed, she feels in herself no inclination to the enjoyment of it, and is thereby not only insensible as to her own particular, but makes imperfect to her husband that exquisite pleasure, which ought to result from their mutual embraces! Supposing neither of the aforesaid calamities to befal her, but that she is capable of bringing forth heirs to her husband; yet, if she is conscious of having weakened her body, and brought on herself a miserable train of pains and infirmities, what anxiety, what remorse, must not a woman endure on that account! Every guilty female, who finds in herself any of the dismal symptoms here enumerated, will not readily forget what sensibly affects her, nor will she easily forgive herself those unnatural sallies, whose fatal consequences rest heavily upon her, and abridge her of half those enjoyments, which her sex, her constitution, and the various benefits of nature, had made her capable of partaking. What I have already said, if duly attended to, will be sufficient to render this practice detestable; to deter the young, and hitherto innocent, from making themselves miserable, and to stop the course of those who have already advanced far in the road to destruction. A sudden and resolute stand, to all old offenders, is what I would in the first place seriously advise, as the most essential step towards restoring to themselves a sound constitution, and that peace of mind which they cannot otherwise enjoy. There are few cases so bad, but what, if taken in any reasonable time, a due regimen and the proper use of medicines may be effectual in the relief of. Let the guilty resolve then, that they will do so no more. Let them, as much as possible, abstain from every thought, but especially from every action, that may raise irregular desires. Let them, when any way tempted, reflect on the miserable condition of many, who, in galloping consumptions, have died terrible examples to all those who persist in this vice. As the most usual complaints of those who have been guilty of this practice, regard the weakness and infertility of the parts, they must have recourse to the medicines hereafter prescribed for barrenness; but, if a consumptive habit be induced, then must the patient be treated as directed under that head.

Of the FUROR UTERINUS.

The *furor uterinus* is ſuch a particular complication of hyſterical ſymptoms, from an extraordinary fulneſs or inflammation of the veſſels of the womb, as forms a ſort of madneſs, wherein the patient is preternaturally diſpoſed, or involuntarily excited, as it were, to venereal embraces. It is a diſtemper not very frequent, but which ſometimes happens. The ſigns of it are very manifeſt, both by the geſtures of the body and the tendency of the patient's diſcourſe; which, how great ſoever her natural modeſty may be, will be extravagantly lewd. The cauſes of this diſeaſe are uſually the ſame with thoſe of other hyſterical diſorders; but, by falling on the organs of generation, are more violent in their effects. A vigorous, healthy, and ſanguine, conſtitution, high feeding, want of exerciſe, or looſe converſation, may diſpoſe to it: as may alſo too large a doſe of cantharides, and other provocative medicines; or indulging vehement deſires, and too great familiarity, but ſhort of enjoyment, with the other ſex. Some time before the fit, the patient often appears ſilent and ſorrowful, with a baſhful down-caſt look, and an unuſual flushing all over the face. Her pulſe is irregular, varying from high and ſtrong to low and weak, and then growing ſtrong again of a ſudden: ſhe breathes alſo now thick and ſhort, and then with long intervals, heaving it out as it were with a ſigh. Theſe ſymptoms increaſe gradually, till the fit actually comes on: then the patient burſts out into a fit of crying, and the tears are plentifully ſhed; if a man comes in her way, ſhe is apt to lay hold of him, and treat him with indecent fondneſs. In fine, thoſe who labour under this diſorder appear to be mad by intervals, and ſay and do a thouſand things which they are unconſcious of when the fit is over. If the ſymptoms are violent, the fit is frequent and of long continuance, and eſpecially if the patient be of a ſanguine conſtitution, unmarried, and the caſe originally proceeds from a fixed amour, it is difficult of cure, and ſometimes degenerates into a continued madneſs. But if the diſtemper proceed from an obſtruction or ſuppreſſion of the monthly courſes, from too great a quantity of blood, or from a too indulgent life, it is more eaſily remedied. The perſon thus afflicted ſhould be removed into a clear and open air, if ſhe be not in ſuch already; and, if ſhe be, a change perhaps may be of ſervice. Her diet ſhould be thin and cooling, and not taken in large quantities: her exerciſe, between the fits, moderate. Let her be kept, as much as poſſible, from the company of men; and eſpecially, if love be the ſuſpected cauſe, from that man whom ſhe is known to regard, unleſs it be to bring them entirely together, and cure the diſeaſe by removing its origin. During the fit, bleed directly, and that in a conſiderable quantity, eſpecially if any evacuations have been ſuppreſſed; afterwards exhibit the following opiate: Take black-cherry water and

white-wine vinegar, of each an ounce; camphor half a ſcruple; white ſugar, two ounces: liquid laudanum, forty drops; mix them well, for a ſingle draught. Alſo take ſpring-water, twelve ounces; lemon-juice and white-wine vinegar, of each one ounce and a half; white ſugar, a ſufficient quantity to make it palatable: mix them well, and let her uſe it for common drink. Take milk, half a pint; tincture of aſſafœtida, two ounces; camphor, ſugar of lead, and troches of myrrh, of each two drams: mix them, and inject cold into the privities with a proper inſtrument. If theſe fail of ſucceſs, repeat the opiate; and, if the fit ſtill increaſe, let the patient be had to the cold bath. Bliſtering alſo has been found ſerviceable to ſome women. A whey-diet, together with the uſe of the cold bath continued for a month or two, are excellent; and, during all this time, clyſters and injections may be uſed between whiles, made according to the form above, without any mixture of more ſtimulating ingredients. When this diſeaſe degenerates into a madneſs, it muſt be treated accordingly, and the beſt advice ſhould immediately be had; for, if it remains long in a confirmed ſtate, it will ſeldom admit of a cure.

Of CONCEPTION, or PREGNANCY.

WHEN Almighty God created the world, he ſo ordered and diſpoſed of the *materies mundi*, that every thing produced from it ſhould continue ſo long as the world ſhould ſtand. Not that the ſame individual ſpecies ſhould always remain; for they were in proceſs of time to periſh, decay, and return to the earth from whence they came; but that every like ſhould produce its like, every ſpecies produce its own kind, to prevent a final deſtruction of the ſpecies, or the neceſſity of a new creation. For which end he laid down certain regulations, by which each ſpecies was to be propagated, preſerved, and ſupported, till, in order and courſe of time, they were to be removed hence; for, without that, thoſe very beings, which were created at firſt, muſt have continued till a final diſſolution of all things; which Almighty God, of his infinite wiſdom, did not think fit. But, that he might ſtill the more manifeſt his omnipotence, he ſet all the engines of his providence to work, by which one effect was to produce another by means of certain laws or rules, laid down for the propagation, maintenance, and ſupport, of all created beings. This his divine providence is called Nature, and theſe regulations are called the *laws of nature*, by which it ever operates in its ordinary courſe, producing conception and generation of all things, as it were, from the beginning.

The proceſs of generation of the human ſpecies, ſo far as the male contributes to it, is as follows: The penis being erected by an affuſion of blood; the glands at the ſame time tumefied, and the nervous papillæ in the glands much rubbed, and highly excited, in coition; an ejaculatory contraction follows, by which the ſeed is preſſed out of the ſeminal veſicles, and expelled with ſome conſiderable

force. The proceſs of generation on the part of the female is thus: The clitoris being erected, after the like manner as the penis in the man; and the neighbouring parts all diſtended with blood; they more adequately embrace the penis in coition; and, by the intumeſcence, preſs out a liquor from the glands about the neck of the womb, to facilitate the paſſage of the penis. At the ſame time, the fibres of the womb, contracting, open its mouth (which at other times is extremely cloſe) for the reception of the finer part of the ſeed.

From this contact of the ſexes, follows *conception*, or the production of an *embryo*, which is effected in the following manner: In the ſuperfices of the teſticles or ovaries of women there are found little pellucid ſpherules, conſiſting of two concentric membranes, filled with a lymphatic humour, and connected to the ſurface of the ovaria, underneath the tegument, by a thick calyx, contiguous to the extremities of the minute ramifications of the Fallopian tubes. Theſe ſpherules, by the uſe of venery, grow, ſwell, raiſe, and dilate, the membranes of the ovary into the form of papillæ; till the head, propending from the ſtalk, is at length ſeparated from it; leaving it a hollow cicatrix, in the broken membrane of the ovary; which, however, ſoon grows up again. Now, in theſe ſpherules, while ſtill adhering to the ovary, fœtuſes have been frequently found, whence it appears, that theſe are a kind of ova, or eggs, deriving their ſtructure from the veſſels of the ovary, and their liquor from the humours prepared therein. Hence alſo it appears, that the Fallopian tubes, being ſwelled and ſtiffened by the act of venery, with their muſcular fimbriæ, like fingers, may embrace the ovaries, compreſs them, and by that compreſſion expand their own mouths: and thus the eggs, now mature, and detached as before, may be forced into their cavities; and thence conveyed into the cavity of the uterus; where they may be either cheriſhed and retained, as when they meet with the male ſeed; or, if they want that, again expelled. Hence the phenomena of falſe conceptions, abortions, fœtuſes found in the cavity of the abdomen, the Fallopian tubes, &c. For, in coition, the male ſeed, abounding with living animalcules, agitated with a great force, a briſk heat, and probably with a great quantity of animal ſpirits, is violently impelled through the mouth of the uterus, which on this occaſion is opener, and through the valves of the neck of the uterus, which on this occaſion are laxer, than ordinary, into the uterus itſelf; which now, in like manner, becomes more active, turgid, hot, inflamed, and moiſtened with the flux of its lymph, and ſpirits, by means of the titillation excited in the nervous papillæ by the attrition againſt the rugæ of the vagina. The ſemen thus diſpoſed in the uterus is retained, heated, and agitated, by the convulſive conſtriction of the uterus itſelf; till, meeting with the ova, the fineſt and moſt animated part enters through the dilated pores of the membranula of the ovum, now become glandulous, is there retained,

tained, nouriſhed, dilated, grows to its umbilicus, or navel; ſtifles the other leſs lively animalcules; and thus is conception effected.

The egg in the ovarium of a woman, when impregnated with the male ſeed, may be compared to the round white ſpot, of the ſize of a ſmall pea, on the yolk of a hen's egg; in which ſmall part, if it is impregnated, the chicken begins to form, and which is commonly called the *tread;* though this part is always to be found in the eggs of thoſe hens that have not cohabited with the cock, but ſmaller; and theſe, not having received the male ſeed, produce no chickens. Therefore, ſince an egg is ſo nearly completed in a hen without communication with a cock, and ſince there are parts in a woman equally adapted for this purpoſe; it may be preſumed, that the unimpregnated egg of a woman, when it proceeds from the ovarium, conſiſts of thoſe parts which are the rudiments of the fœtal part of the placenta and membranes; and, moſt likely, a part, at leaſt, of the rudiments of the child itſelf; and may be called the *ovarial portion*, which, when impregnated by the addition of the male ſeed, and afterwards conveyed into the womb, acquires a further addition from the womb itſelf; which may be called the *uteral portion*; but, if not impregnated, it is diſcharged from the womb without any further growth. For a complete analyſis of other ſyſtems on the ſubject of conception, ſee my Key to Phyſic and Occult Sciences, p. 285 & ſeq.

The firſt thing that appears of a fœtus, is the placenta, like a thick cloud, on one ſide of the external coat of the egg; about the ſame time the ſpine is grown big enough to be viſible; and a little after the cerebrum and cerebellum appear like two ſmall bladders: next, the eyes ſtand prominent in the head: then the *punctum ſaliens*, or pulſation of the heart, is plainly ſeen. The extremities diſcover themſelves laſt of all. The formation of the bones in a fœtus is very gradual, and regularly performed. In the firſt two months there is nothing of a bony nature in the whole; after this, the hardneſs of the parts where the principal bones are to be ſituated becomes by degrees perceptible. Dr. Kerkring deſcribes the progreſs of the oſſification from ſkeletons which he had prepared from fœtuſes of two months, and thence up to nine. In the firſt two months, or till the end of that time, there appears not any thing bony; after this, in the third and fourth months, and ſo on, the ſeveral parts, one after another, acquire their bony nature. In the firſt ſtages every thing is membranous, where the bones are to be; theſe by degrees tranſmigrate into cartilages; and from theſe, by the ſame ſort of change continued, the bones themſelves are by degrees formed. All this is done by nature, by ſuch ſlow though ſuch certain progreſſions, that the niceſt eye can never ſee it doing, though it eaſily ſees it when done.

Though the ſtate of pregnancy is not a diſeaſe, yet it is attended with a variety of complaints which merit great attention, and often require the aſſiſtance of medicine.

Some

Some women indeed are more healthy during their pregnancy than at any other time; but this is by no means the general cafe: moft of them breed in forrow, and are frequently indifpofed during the whole time of pregnancy. Few fatal difeafes, however, happen during that period; and hardly any, except abortion, that can be called dangerous. Every pregnant woman is more or lefs in danger of abortion. This fhould be guarded againft with the greateft care, as it not only weakens the conftitution, but renders the woman liable to the fame misfortune afterwards. Abortion may happen in any period of pregnancy, but it is moft common in the fecond or third month; fometimes however it happens in the fourth or fifth. If it happens in the firft month, it is ufually called a *falfe conception*; if after the feventh month, the child may be often kept alive by proper care. The common caufes of abortion are the death of the child, weaknefs or relaxation of the mother, great evacuations, violent exercife, jumping or ftepping from an eminence, vomiting, coughing, convulfion-fits, ftrokes on the belly, falls, fevers, difagreeable fmells, excefs of blood, indolence, high living or the contrary, violent paffions or affections of the mind, as fear, grief, &c. When any figns of abortion appear, the woman ought to be laid in bed on a mattrefs, with her head low. She fhould be kept quiet, and her mind foothed and comforted. She ought not to be kept too hot, nor to take any thing of a heating nature. Her food fhould confift of broths, rice and milk, jellies, gruels made of oatmeal, and the like, all of which ought to be taken cold. If fhe be able to bear it, fhe fhould lofe, at leaft, half a pound of blood from the arm. Her drink ought to be barley-water, fharpened with juice of lemon; or fhe may take half a dram of powdered nitre, in a cup of water-gruel, every five or fix hours. If the woman be feized with a violent loofenefs, fhe ought to drink the decoction of calcined hartfhorn prepared. If fhe be affected with vomiting, let her take frequently two table-fpoonfuls of the faline mixture. In general, opiates are of fervice, but they fhould always be given with caution. Sanguine robuft women, who are liable to mifcarry at a certain time of pregnancy, ought always to be bled a few days before that period arrives. By this means, and obferving the regimen above prefcribed, they might often efcape that misfortune.

Of CHILD-BIRTH.

THOUGH the management of women in child-bed has been practifed as an employment fince the earlieft accounts of time, yet it is ftill, in moft countries, on a very bad footing. Few women think of following this employment till they are reduced to the neceffity of doing it for bread. Hence not one in a hundred of them have any education, or proper knowledge of their bufinefs. It is true that nature, if left to herfelf, will generally expel the fœtus; but it is equally true, that moft

women

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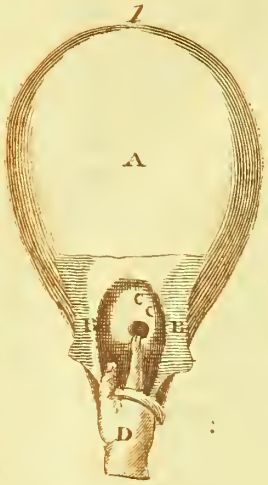

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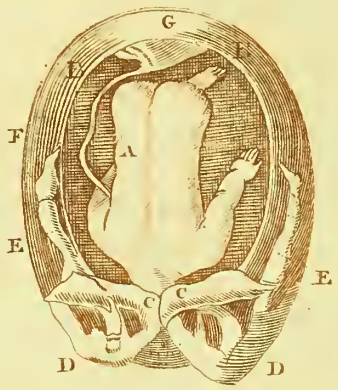

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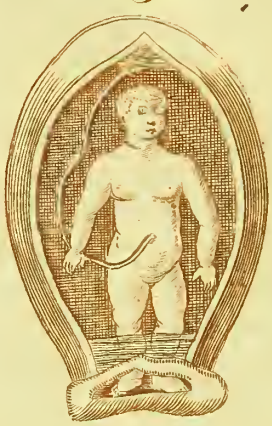

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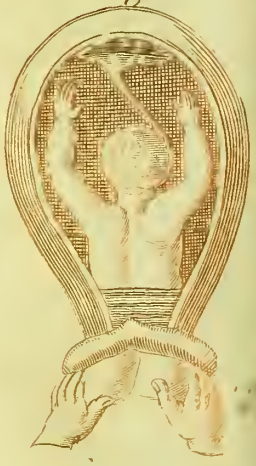

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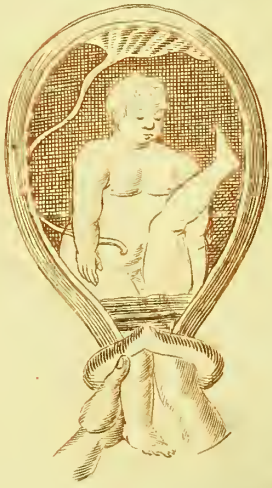

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Process of Delivery.

women in child-bed require to be managed with ſkill and attention, and that they are often hurt by the ſuperſtitious prejudices of ignorant and officious midwives. The miſchief done in this way is much greater than is generally imagined; moſt of which might be prevented by allowing no women to practiſe midwifery but ſuch as are properly qualified. Were due attention paid to this, it would not only be the means of ſaving many lives, but would prevent the neceſſity of employing men in this indelicate and diſagreeable branch of medicine, which is, on many accounts, more proper for the other ſex. In order to obtain a perfect idea of the proceſs of delivery, and to form a competent knowledge of difficult childbirths, it is neceſſary we ſhould firſt underſtand thoſe that are natural. The time of the natural birth is from the 15th day of the ninth month to the end of the 30th of the ſame: yet ſome women affirm it may be ſooner or later. Hoffman ſays, the uſual time is nine ſolar months; and Junker, that, excretions from the uterus being by women referred to certain lunar phaſes, they reckon their going with child by the weeks, and that they uſually exclude the fœtus forty weeks from the time of their being with child, commonly on that very day they were uſed to have their menſes. When this time is arrived, which may be known by a remarkable deſcent of the womb, and a ſubſidence of the belly, the fœtus is mature for delivery; it then turns round, and its head falls towards the orifice of the womb, as in the annexed Plate, where A A denotes the portion of the chorion diſſected and removed from its proper place; B a portion of the amnios; C C the membrane of the womb diſſected; D D the placenta endued with many ſmall veſſels by which the infant receives its nouriſhment; E the varication of the veſſels which makes up the navel-ſtring; F the navel-ſtring, by which the umbilical veſſels are carried from the placenta into the navel; G G the infant as it lies perfect in the womb ready for delivery; H the inſertion of the umbilical veſſels into the navel of the infant. The orifice of the womb dilates by the weight and preſſure of the child; and the chorion and amnios, being driven forward with the waters they contain, form a kind of pouch or bladder at the ſaid orifice; which ſhould be ſuffered to break of itſelf, or at leaſt it ſhould not be burſt till the woman is in labour. There is a flux of whitiſh matter from the ſaid orifice; pains which extend from the loins and groin towards the genital parts; there is a frequent deſire to make water, or a continual inclination to go to ſtool; a flux of the waters from the membranes which contain the child immediately before the birth, or more early; a trembling of the lower joints; ſometimes the head achs, and the face looks intenſely red. In this ſtate of things, the midwife ought to examine the ſtate of the uterus, and relax the vagina by ſome oily and mollifying remedy, which ought to be kept in readineſs; ſhe ſhould likewiſe examine by the touch, with the fore and middle fingers, introducing them from

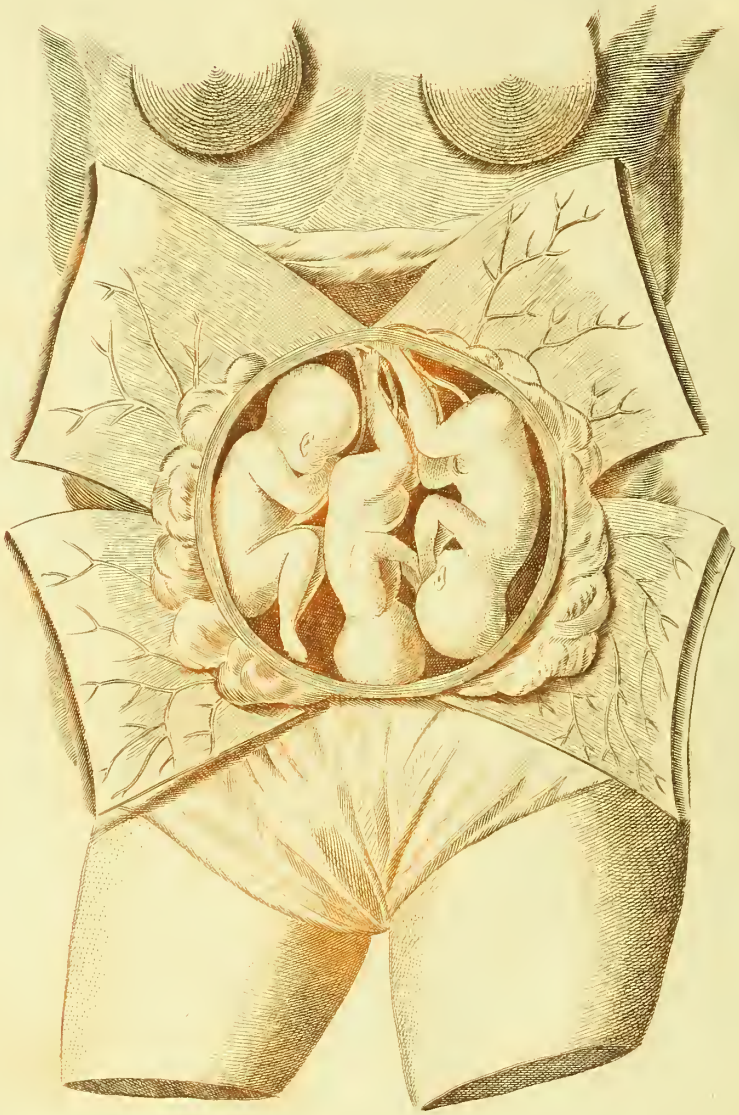
time to time into the orifice of the womb, to diſcern whether it be dilated, contracted, or in an oblique or ſtraight direction; from whence judgment may be formed whether it will come eaſily, or difficultly, &c. as repreſented in fig. 1 of the annexed Plate, where A denotes the uterus; B B the vagina laid open; C C the os uteri internum, as yet contracted, but in its right ſituation; D repreſents the manner of examining the os uteri with one or more of the fingers, which, if obliquely ſituated either forwards towards the os pubis, backwards on the os ſacrum, or towards either ſide, denotes a difficult delivery. As the infant gradually advances, the above-mentioned protuberance continually enlarges the paſſage, till the crown of the head may be felt; the birth is then ſaid to be advanced one third, and the midwife may now aſſiſt the excluſion. When the infant is advanced forward as far as the ears, it is ſaid to be in the paſſage, as ſhown in fig. 2 of the annexed Plate, which repreſents the natural poſture of the infant in the birth with its head protruding into the os uteri, under the arch of the os pubis: A the infant, B B the womb laid open, C C the oſſa pubis, D D the oſſa iſchii, E E the oſſa ilei, F the navel-ſtring, G the ſecundines adhering to the womb. If the membranes are not already burſt, they may now be opened, and the waters, by their effuſion, will render the vagina ſlippery, and promote the expulſion of the infant. When the child is born, the midwife ſhould lay it on her knees ſo as to give iſſue to the waters from the mouth, if any have been imbibed: ſoon after, the placenta appears of itſelf, if not attached to the uterus: if otherwiſe, the midwife muſt ſeparate it gently, by introducing her hand. The navel-ſtring muſt now be cut, having firſt made a ligature as well on the child's ſide as on the mother's, to prevent an hæmorrhage. After the child is born, and the after-birth brought away, let a warm linen cloth be applied to the parts, but not ſo as to hinder the flowing of the lochia. An hour after, let the mother take a little oil of ſweet-almonds, to eaſe the after-pains; and let a cataplaſm of the oil of ſweet almonds two ounces and two or three new-laid eggs be boiled together, and laid to the parts, renewing it every ſix hours, for two days: fifteen days after the birth, the parts may be bathed with an aſtringent decoction of red roſes, balauſtines, or nutgalls, in red wine, in order to brace them. If the labour has been long and difficult, it will be proper to bleed, to prevent inflammation, and to give a little Alicant wine, with addition of cinnamon, or confectio alkermes.

A difficult delivery is ſometimes brought on by the mother, the midwife, or the fœtus. The fault is in the mother, if, when the orifice of the womb is open, and the child rightly placed, ſhe has not ſtrength to expel the fœtus, eſpecially if the waters are come away, and the pains ceaſe; or when the mother will not exert herſelf; or there is a natural fault in the genital parts. In a defect of ſtrength or pains, all elſe being right, a draught of generous wine ſhould be given, with

cinnamon and mace, again and again, if the work does not go forward. If there wants a greater ſtimulus, borax, cinnamon, or myrrh, may be given, with a proper drink, which muſt be repeated in an hour or two, if occaſion requires. But the abuſe of forcing medicines is dangerous: ſtimulating clyſters may be injected now and then, eſpecially if the woman is coſtive. The midwife ſhould alſo preſs back the os coccygis, which tends to excite the pains, and to eaſe the labour. If the parts are over ſtrait, as in the firſt birth, eſpecially if the woman is not young, emollient liniments are to be uſed, and the parts muſt be anointed with freſh butter, or oil, and be dilated gently with the fingers. If there is a tumour, caruncle, or membrane, oppoſing the birth, a ſurgeon's aſſiſtance is required. The midwife is in fault, if ſhe haſtens the labour before the time, when there are no true pains, and the orifice of the uterus is not open, which alone diſtinguiſhes the true pains from falſe. The true time of birth muſt be waited for: the woman muſt be compoſed, and her ſpirits kept up with comfortable liquors. If the fault is with the fœtus, and the head is too large, or the ſhape monſtrous, or the ſituation preternatural, then forcing medicines are fruitleſs and noxious; and the fœtus muſt be brought forth by the feet, by a ſkilful hand, or the inſtrument called embryulcus, as in fig. 9 of the annexed Plate, whether alive or dead. If the feet preſent firſt, as in fig. 3, the midwife muſt be wary, leſt there be twins, and leſt ſhe ſhould take a foot of each: the feet muſt be wrapped in a dry napkin, and the child muſt be drawn gently, till the waiſt is in the orifice of the uterus: then the infant's hands ſhould be drawn cloſe by the ſides; and, if the noſe be towards the os pubis, it ſhould be turned towards the coccyx, to prevent an obſtacle. Then the orifice muſt be dilated with the fingers, and the woman's throws ſhould aſſiſt the midwife's efforts to educe the child. If the chin is embarraſſed, the midwife muſt diſengage it, by putting her finger into the mouth, in order to turn it to advantage. If the infant's head preſents acroſs, as in fig. 4, it muſt be put back, and gently turned to its natural ſituation; and, if the ſhoulder or back preſents, as in fig. 5 and 6, the ſame art muſt be uſed. If the belly, hip, or thigh, appears firſt, as in fig. 7 and 8, the child muſt be extracted by the feet, and the mother muſt lie horizontally on her back. If one or both hands are directed upwards, and lie cloſe to the head, the caſe is not ſo bad as ſome apprehend, for they will keep the orifice dilated till the head paſſes, and prevent ſtrangling. If one leg, or the feet and hands, appear, they muſt be returned, and the infant brought forth by the feet, as in fig. 10 and 11. If the infant is dead, there is generally a collapſion of the abdomen; the breaſts are flaccid; the infant bears on the lower part of the pelvis; and the child, upon motion, rolls like a lump of lead. The bones of the ſkull are wrapped over one another; an ichorous ſymphatic fanies flows from the uterus; the mother is ſubject to fainting. There is no pulſation in the navel-ſtring, which is

ſoft

ſoft and indolent to the touch, and abſolutely deprived of motion. If the placenta comes firſt, and is hot, the child is alive. Above all, if any part of the infant's body appears, and is full of ſmall veſicles, livid, ſoft, and brittle, it is not only dead, but beginning to putrefy. In theſe caſes it muſt be extracted by the feet, and, if it cannot be done otherwiſe, with an inſtrument; but a man-midwife's aſſiſtance muſt not be neglected. When the fœtus dies before the time of birth, and the membranes continue whole, it will not putrefy; therefore the work muſt be left to nature, for birth-pains will at length come on ſpontaneouſly. If the navel-ſtring appears firſt, and is compreſſed ſoon after by the head of the infant, its life is in danger, and the remedy is to return the infant, and reduce the cord, till the head fills the orifice; but, if this cannot be done, the woman muſt be put in a ſuitable poſture, and the child muſt be extracted by the feet. When the placenta preſents itſelf, which is known by its ſpongy ſoft texture, and the great quantity of blood flowing at the ſame time, it requires ſpeedy aſſiſtance. If the membranes are entire, they ſhould be broken; the placenta and membranes ſhould be reduced into the uterus, and the child be extracted by the feet; which is more eaſily performed in the membranes than in the uterus, and put into a proper ſituation: but, if the placenta is diſengaged from its membranes, and theſe are broken, and the placenta, or both, appear before the infant, they may be brought away firſt, and the infant immediately afterwards. Where there is a great flux of blood from outward accidents, the infant ſhould be immediately delivered by art, though the mother is not in true labour. If the uterus is opened, and the vagina relaxed, as in this caſe they commonly are, the child muſt be extracted by the feet; if not, they muſt be mollified with freſh oil, and the infant delivered as before. After all laborious births, the woman is generally weak, and apt to faint: therefore, her ſpirits ſhould be kept up by a glaſs of hot wine, or analeptic water, which muſt be repeated as oft as there is occaſion. If, after the child is born, the placenta does not ſoon follow, and it adheres to the womb, the woman is not to change her poſture immediately, but the midwife's hand is to be introduced into the womb, as far as the placenta, taking the navel-ſtring for a guide; and, taking hold of it, ſhe is to move it gently to and fro, in order to looſen and extract it. If it adheres too cloſely, it is not to be pulled forcibly, or broken: it will be beſt to wait half an hour, keeping the hand in the uterus for fear of its cloſing, till it comes away of itſelf, or may be ſeparated without force, as in fig. 12, which exhibits the method of ſeparating and extracting the placenta from the womb, when it does not eaſily follow the infant. There the navel-ſtring A A is held by the left hand B, while the right hand D is thereby guided in the collapſed uterus C C to the placenta E, which is hereby ſeparated from the uterus. If, through the unſkilfulneſs of the midwife, the orifice of the womb cloſes before it is come away,



Posdtion of the Embryos in a plural Conception.

away, aloetic pills muſt be taken every evening. If it putrefies, the patient dies, or falls into dangerous fevers.

After delivery, the woman ſhould be put into bed, and a folded ſheet put under her hips, in order to receive the lochia. Warm linen ſhould be applied to the genital parts, to keep out the air, and a compreſs, dipped in warm wine, ſhould be applied to the belly, but not too tight. If there are violent pains after delivery, they generally proceed from the after-birth's being retained, or part of it; from blood clotted or concreted in the uterus; from hard labour; from a defect in the flux of the lochia; or from wind, eſpecially if the woman has not been ſwathed in a proper way. In this caſe, hot diluents are proper, or an infuſion of camomile-flowers, drunk as tea; or broths with carraway-ſeeds; or wormwood, or thin orange-peel one ounce, or a bitter tincture in a proper infuſion, taken hot. An ounce or two of oil of ſweet almonds, taken in a hot vehicle, is alſo excellent.

If violent pains continue after delivery of the child, ſo as to give ſuſpicion of more being left behind, the greateſt care and circumſpection ſhould be uſed in examining the ſtate of the uterus, and watching an opportunity to extract them in thoſe favourable moments when the efforts of nature and the mother's throws mutually conſpire to promote the birth; and in which the utmoſt ſkill and caution are requiſite, or both mother and offspring are liable to periſh. Theſe caſes, when they happen, are generally attended with the more difficulty from the midwife not knowing the uſual poſition of a plural conception. I have therefore given the annexed plate of a recent caſe, where three children were ſafely delivered, who, with the mother, are all in a fair way of doing well.

The moſt fatal diſorder conſequent upon delivery is the *puerperal* or child-bed fever; and there is not any diſeaſe that requires to be treated with more ſkill and attention than this: conſequently the beſt aſſiſtance ought always to be obtained as ſoon as poſſible. In women of plethoric conſtitutions, bleeding will generally be proper at the beginning; it ought, however, to be uſed with caution, and not to be repeated unleſs where the ſigns of inflammation riſe high; in which caſe it will alſo be neceſſary to apply a bliſter to the region of the womb. During the rigour, or cold fit, proper means ſhould be uſed to abate its violence, and ſhorten its duration. For this purpoſe the patient may drink freely of warm diluting liquors, and, if low, may take now and then a cup of white-wine whey; warm applications to the extremities, as heated bricks, bottles, or bladders, filled with warm water, and ſuch-like, may alſo be uſed with advantage. Emollient clyſters of milk and water, or of chicken-broth, ought to be frequently adminiſtered through the courſe of the diſeaſe. Theſe prove beneficial by promoting a diſcharge from the inteſtines, and alſo by acting as a kindly fomentation to the womb and parts adjacent. Great care, however, is requiſite in giving them, on account of the tenderneſs of the parts in the pelvis at this time. The medicine always found to ſucceed

beſt in this diſeaſe is the Lunar Tincture. This, if frequently repeated, will often put a ſtop to the vomiting, and at the ſame time leſſen the violence of the fever. If it runs off by ſtool, or if the patient be reſtleſs, a few drops of laudanum, or ſome ſyrup of poppies, may occaſionally be added. To avoid this fever, every woman in child-bed ought to be kept perfectly eaſy; her food ſhould be light and ſimple, and her bed-chamber cool, and properly ventilated. There is not any thing more hurtful to a woman in this ſituation than being kept too warm. She ought not to have her body bound too tight, nor to riſe too ſoon from bed after delivery; catching cold is alſo to be avoided; and a proper attention is to be paid to cleanlineſs. To prevent the milk-fever, the breaſts ought to be frequently drawn; and, if they are filled previous to the onſet of a fever, they ſhould, upon its firſt appearance, be drawn, to prevent the milk from becoming acrid, and being abſorbed in this ſtate.

DISEASES OF INFANTS.

IT is proper, immediately after children are born, to ſearch narrowly whether they have received any injury, either in the womb or in the delivery itſelf. Bruiſes in the head, or elſewhere, occaſioned by the rough treatment of the midwife, and ſwellings occaſioned by a preſſure againſt the internal orifice, may be cured or diſcuſſed by the following mixture: Take camphorated ſpirits of wine, and oil of ſweet almonds, of each two drams; compound ſpirit of lavender, half a dram: mix. Let the injured part be frequently anointed therewith. It may alſo be now and then fomented with warm milk. But, if the ſwelling tends to ſuppuration, it ought to be immediately forwarded with mucilage plaſter, diachylon with gum, or a poultice of bread and milk. And, after the diſcharge of matter, uſe Arcæus's liniment, warm, and mixed with a little Peruvian balſam, for the dreſſings, covering them with a ſimple diachylon plaſter.

The *gripes* in children ſometimes prove ſo violent, as to throw them into univerſal convulſions, or to cauſe what is called a convulſion of the bowels. When the diet is ſuſpected to cauſe this diſorder, it is uſual to boil carraway-ſeeds and laurel-leaves along with the panada, or to mix with it a little wine or brandy. If the meconium has not been duly purged away, five grains of rhubarb ſhould be given twice a-week, till the bowels are evacuated; or a little oil of ſweet almonds, and ſyrup of violets, where the infant is weak. When the taking-in too much milk is ſuſpected to be the cauſe, let it be debarred the breaſt a ſhort time, in the mean while exhibiting the following mixture: Take ſyrup of peach-bloſſoms and rhubarb, of each half an ounce; of aniſeſeed, two drops: mix. Let a ſmall ſpoonful of this be given occaſionally, while the ſymptoms laſt. When the curdling of the milk cauſes the gripes, proceed as follows: Take rhubarb powdered fine, and magneſia alba, of each ten grains; oil of aniſeſeed, one drop: mix.

Give

Give half this for a purge, in a ſpoonful of the mother's milk, and repeat the doſe two or three times if there be occaſion. When worms are the cauſe of the gripes, the readieſt way to remove them is by giving Ethiop's mineral and rhubarb mixed in equal quantities, about five grains at a time, twice a-day. If wind be the cauſe, the belly of the child may be anointed with a mixture of two parts of oil of ſweet almonds, and one part French brandy; wrapping the part up warm afterwards with a flannel.

The ſymptoms of *cutting teeth* generally begin about the fifth or ſixth month, at which time ſome of the fore-teeth riſe, and occaſion great pain, or even convulſions. Children have then commonly an itching, heat, pain, and ſwelling, in the gums; their ſpittle riſes much, they are reſtleſs and feveriſh, ſometimes looſe and ſometimes coſtive. A few days before any tooth is cut, the gum immediately above it appears thin and whitiſh, its ſides being ſwelled and inflamed. Children of groſs habit, and who breed their teeth with coſtiveneſs, are generally in moſt danger. The following mixture, given occaſionally, will mitigate the pain during the cutting of teeth: Take black cherry-water, two ounces; compound piony-water, two drams; confection of kermes, two ſcruples; Sydenham's liquid laudanum, fifteen drops: mix. Let one ſpoonful be given at a time, when the child is very reſtleſs.

Thoſe little ulcerous eruptions in the mouth called the *thruſh*, which ſometimes appear early, and ſometimes not till the third or fourth year, are accounted dangerous when joined with a fever, and are always troubleſome. The child here ſhould be kept moderately cool, as in a common fever, and a ſmall bliſter may be applied to the neck, if the diſorder be great. In the mean time uſe the following julep: Take black cherry-water, four ounces; treacle-water, one ounce; lemon-juice, ſix drams: ſpirit of ſweet nitre and ſpiritus volatile oleoſum, of each fifteen drops; mix them together, and give a ſpoonful or two every third or fourth hour; and let the ulcers in the mouth be cleanſed with the following gargle: Take barley decoction, three ounces; beſt vinegar, one ounce; ſyrup of mulberries, ſix drams: mix. This ſhould be uſed twice or thrice a-day, with a ſoft linen rag, or the nurſe's finger.

Coughing, crying, violent motion, and ſwathing, are apt to cauſe *ruptures* in the tender bodies of infants. While the rupture is freſh, it may be remedied by the conſtant wearing of a truſs, made for that purpoſe. Aſtringent fomentations, made of pomegranate-peels, balauſtines, and red-roſe flowers, boiled in lime-water, and mixed with red wine, may be uſed after the inteſtines are replaced, which ſhould be immediately done. Small ruptures in the groin and privities, happening frequently in children, are uſually cured with ſmall difficulty, by only plaſters and bandages; but, when they continue obſtinate, the child ſhould be kept in the cradle as quiet as poſſible. See p. 195.

When

When the *futures* or joining ſeams of the *head* continue too long open, it is thought a bad ſign. In this caſe it is uſual to rub the head often with a little warm rum or brandy, mixed with the white of an egg and palm-oil, a red cloth being conſtantly worn over the part. But, when this diſorder proceeds from a collection of water in the head, it muſt be cured by iſſues in the neck, perpetual bliſters, and purgatives. A purgative diet-drink may be made of rhubarb and ſweet-fennel ſeeds, to be drunk daily. When there is a diſorder directly oppoſite to this, called *head-mould ſhot*, which ſignifies a too-cloſe locking of the ſutures, it is uſually left to nature, as admitting of no help from medicine.

Breakings-out in children, when they are ſuperficial, contain a thin yellow matter, and leave the ſkin beneath red when the ſcabs fall of, are rather ſalutary than hurtful. It is cuſtomary, however, to purge with a few grains of rhubarb, and anoint the puſtules with cream, or oil of almonds, or extract of Saturn, commonly called goulard. A little baſilicon, likewiſe, ſpread thin upon lint, has been found uſeful; and the body ſhould be kept open. But, when theſe caſes grow inveterate and ſtubborn, there can be no ſafer method than a courſe of Ethiop's mineral and rhubarb.

The *rickets* is a diſorder of the bones in children, cauſing a bunching-out or crookedneſs thereof. It may be occaſioned by ſwathing a child too tight in ſome places, and too looſe in others; by placing it in an inconvenient, or too often in the ſame, poſture; ſuffering it to be long wet, not giving it proper motion, or uſing it to one arm only. It may alſo be owing to the parents, or ſome defect in the digeſtive faculty, or a viſcidity of the blood. But the moſt evident cauſe of the rickets, is the violence done to the body by preſſure of ſwathing, while the bones are but in a cartilaginous ſtate. Add to this, external injury by falls, blows, diſlocations, or fractures, which ſometimes bring on an aſthma, conſumption, or crookedneſs of the back. Upon the firſt appearance of this diſeaſe, which uſually happens between the eighth month and the fifth year, the part it affects grows flaccid and weak; the child becomes pale, ſickly, ſlothful, and loſes the uſe of its feet, though it had it before; the head grows too large for the trunk, and cannot be managed by the muſcles of the neck; knotty excreſcences appear in the wriſts, ankles, and tops of the ribs; the bones of the legs and thighs become crooked, which makes the motion diſagreeable; and ſometimes the arms alſo are diſtorted, and appear knotty. If theſe ſymptoms continue long, a difficulty of breathing, cough, and hyſteric fever, come on; the belly ſwells, the pulſe grows weak, and the child's life is in danger. The rickets is moſt commonly cured when taken in time, and while the child is very young. But, if it continues long, the patient gene-

rally becomes a dwarf, and is ſickly or phthiſical during life, eſpecially if the back be any way affected. A rickety child ſhould be uſed to motion, and kept as much as poſſible in a poſture oppoſite to that which his bones are inclined to. It is alſo ſerviceable, before the diſtemper is confirmed, to plunge the child two or three times every morning in a tub of cold water, during the months of May and June eſpecially. After being taken out the laſt time, it is to be well dried, and put immediately into a bed or cradle, there to ſweat freely for an hour or more, as the ſtrength will bear; and, when it grows cool again, it may be taken up and ſhifted. The back-bone alſo, and joints, may every night be anointed before the fire, with the white of an egg beat into water with a whiſk or ſpoon; or with a liniment of rum and palm-oil. It is uſual likewiſe to apply a plaſter of minium and oxycroceum along his back, and to rub him all over before the fire, but moſtly the parts affected, with a dry linen cloth. But perhaps nothing can exceed the following liniment and plaſter; the former for anointing the joints, and principal parts affected, with a warm hand, once or twice a-day; and the latter for applying to the back, or any particular part, being ſpread upon leather. Take nerve-ointment, with oils of palm and bays, of each one ounce; balſam of peru, and oil of nutmeg by expreſſion, of each two drams; oil of cloves and chemical oil of amber, of each ten drops; compound ſpirits of lavender, one ounce; ſpirit of ſal ammoniac, two drams: mix for a liniment. Take plaſter of cummin, brown minium, and herniam and oxycroceum, of each half an ounce; balſam of peru, one dram; powder of red-roſe flowers, and armenian bole, of each half an ounce; oils of amber and camphor, of each one dram; oil of parſley, enough to make a conſiſtence for a plaſter. When the diſtemper ſeems fixed and obſtinate, iſſues may be cut in the arms and neck, eſpecially if the head be large, and the child of a groſs habit.

Of BARRENNESS in WOMEN, and INSUFFICIENCY in MEN.

BARRENNESS is ſuch a ſtate of a woman's body as indiſpoſes it, upon the uſe of the natural means, to conceive and propagate her ſpecies. This diſtemper proceeds from many ſources, which may be reduced to theſe two general heads: Firſt, An indiſpoſition of the parts to receive the male ſemen in the act of copulation, or that vital effluvium ſtreaming from it which alone can impregnate the ovaria. Secondly, An inaptitude to retain and nouriſh the vital particle after it is injected, ſo as to make it grow and expand its parts, till it becomes a proper fœtus. The reception of the ſeed is hindered by many cauſes; as, immature age, when by reaſon of the narrowneſs of the genital paſſages the woman cannot admit the virile member, or at leaſt not without great pain, which makes her diſlike copulation; and old age hath ſometimes the ſame effect; for in elderly virgins, the parts are ſo ſtraitened for want of uſe, that they cannot

without difficulty contribute to the means of generation. Women who are lame alſo, or have their limbs diſtorted, or their hips depreſſed, cannot always lie in ſuch a poſture as is neceſſary for a fit reception of the ſemen. Too much fat likewiſe ſtops the paſſage, particularly when the omentum preſſes upon the orifice of the womb, and renders the copulation incommodious. And, when a woman is troubled with a cold intemperament of the womb, ſhe becomes dull and indifferent as to conjugal embraces, in which ſhe hardly enjoys any pleaſure, or is ſo ſlowly moved, that the inner orifice of the womb does not open ſeaſonably to receive the man's ſeed. The paſſions of the mind are alſo a great hindrance to fertility, eſpecially hatred between man and wife, whereby the woman, having an averſion to enjoyment, does not ſupply ſpirits ſufficient to make the genital parts turgid at the time of coition: nor can the womb then kindly meet the effluvium, and draw it into its cavity in a due manner. Swellings, ulcers, calloſities, obſtructions, diſtortions of the genital or neighbouring parts, may be ſo many impediments to the proper reception of the male ſemen, or its retention and nutriment after reception. A ſtone in the bladder may have the ſame effect, as may a too great moiſtneſs and ſlipperineſs of the womb or vagina, when they are filled with excrementitious humours, and rendered too lax. Conception is alſo hindered by a hectic, hydropic, or feveriſh, ſickly, habit; by a deficiency or obſtruction of the monthly courſes, when the natural briſkneſs of the blood is wanting; by an immoderate flux of the courſes, which impoveriſhes the fluids; by the whites, which, continuing too long, relax the glands of the womb, and drown, as it were, the prolific particles; and too often by *ſecret venery*, which utterly deſtroys the tone and vigour of the parts. This may particularly happen on the ſide of the man, ſince it induces a ſeminal weakneſs, and a want of a proper erection. A virulent gonorrhœa or ill-cured venereal caſe, faſt living, a worn-out conſtitution, and want of animal ſpirits or ſufficient ſeed, are ſo many obſtacles to procreation. Sometimes, indeed, there may be no defect diſcoverable on either ſide, and yet the parties remain without iſſue, notwithſtanding their moſt earneſt endeavours to the contrary. When a ſwelling actually appears in the uterine veſſels, when the menſes are irregular, or the whites have continued long, if, by the uſe of proper means, the woman does not conceive under theſe circumſtances, her own reaſon will dictate to her, that ſhe muſt have immediate recourſe to the remedies preſcribed for thoſe particular complaints. When ſhe is very fat and bulky, and has cauſe to think her conception is thereby hindered, her only way is to correct that vicious habit by a thin ſpare diet, and proper evacuation. If the lips of the privities, or the entrance of the vagina, are cloſed, it is manifeſt to the ſight: but, when the orifice of the womb is ſhut up, it is difficult to be known, while the patient is very young, and till her courſes come down: but, when the patient is once certain that it happens by any of

theſe cauſes, it may not be raſh to ſay, that conception is impracticable till they are removed.

When there is a total want of erection, or of ſeminal matter, on the ſide of the male, generation is not only impoſſible, but the cure very precarious and difficult. Preparatory to the cure of infertility in either ſex, it is proper to uſe evacuations, unleſs any particular ſymptom ſhow them to be dangerous. Bleeding, lenient purgatives, ſuch as the ſolutive electuary, and a gentle vomit of ipecacuanha, eſpecially if the perſon be plethoric or cacochymic, cannot but be of great ſervice; becauſe moſt of the medicines to be preſcribed, in this caſe, being aromatic, or highly nouriſhing, may otherwiſe bring on inflammatory diſorders, as the pleuriſy, inflammation of the lungs, and the like. Due evacuations having been complied with, proceed with the following ſtrengthening electuary: Take roots of ſatyrion, and eringo candied, of each one ounce; powders of cinnamon, ſweet fennel ſeeds, and preſerved ginger, of each half an ounce; mace, roots of contrayerva and Spaniſh angelica, of each one dram; troches of vipers, one ounce; juice of kermes, ſix drams; tincture of cantharides, half a dram; ſyrup of cloves, a ſufficient quantity to make an electuary. Let the quantity of a large nutmeg be taken every morning early, at about five o'clock every afternoon, and at night going to bed; and let this courſe be continued as long as the caſe requires. Three ſpoonfuls of the following wine ſhould be drunk after each doſe, to the efficacy of which it will make a conſiderable addition: Canary wine, two quarts; cloves, nutmegs, long pepper, ſmaller cardamum ſeeds, Virginian ſnake-root, and cochineal, of each one dram and a half; ſyrup of citron-peels, four ounces: infuſe the aromatics, and mix in the ſyrup. If theſe, upon trial, ſhould not be found effectual, the following, which is more ſtimulating and powerful, ſhould be taken, viz. Conſerve of orange-peels, one ounce; Venice treacle, and confection of kermes, of each half an ounce: ſpecies of diambræ, winter's bark, powder of ſaffron, ſmaller cardamum ſeeds, carraways, powdered nutmegs, Virginian ſnake-root, and cloves, of each one dram; viper's fleſh, an ounce; balſamic ſyrup, enough to make an electuary. Let this be taken in the ſame quantities, and at the ſame intervals, as the other, drinking after it four ſpoonfuls of the following infuſion: Cinnamon powdered, one ounce; ſweet fennel ſeeds bruiſed, and lavender-flowers, of each half an ounce; Spaniſh angelica-root, ginger, contrayerva, mace, and cochineal, of each one dram and a half; canary wine two quarts: infuſe according to art for two or three days, and to the ſtrained infuſion add ſyrups of ſaffron and cloves, of each two ounces. At twelve o'clock each day, take a table ſpoonful of the Solar Tincture in a wine-glaſs of cold ſpring water; this Tincture is a moſt excellent diſcovery for the purpoſe of curing ſterility. It rectifies and warms the blood and juices, increaſes the ſpirits, invigorates and revives the whole

whole human machine, and not only raiſes the appetite to venereal embraces, but removes the uſual obſtructions of fertility; prepares the ſemen for performing its office, and the ova for impregnation. In old age it warms, comforts, and excites the generative parts to admiration, and ſeldom fails of performing a cure in forty or fifty days, if duly followed, and the barrenneſs or imbecility be not abſolutely incurable by medicine; particularly if aſſiſted with a nouriſhing diet, of which plenty of good potatoes and rich milk ought to make a conſiderable part. When there is a ſufficient erection, and only the ſeed is wanting, all ſtimulating and aromatic medicines muſt be entirely omitted, and the cure attempted with the Tincture only, aſſiſted with a nouriſhing diet; to which the uſe of external liniments muſt be added. Take nerve-ointment, two ounces; oil of mace by expreſſion, one dram and a half; balſam of Peru, two drams; chemical oils of lavender, cloves, and rhodium, of each four drops: mix. Anoint the parts between-whiles with this liniment: that is to ſay, the penis and ſcrotum if it be for a man, and the pudendum if for a woman; and it will not fail of adminiſtering comfort and ſtrength. If any thing yet more ſtimulating be deſired, a dram and a half, or two drams, of tincture of cantharides, may be added to either preparation. But I would not adviſe any debilitated perſon to be too buſy with high provocatives, becauſe they may incite to the uſe of venery before nature is prepared for it, and ſo exhauſt the animal ſpirits more by one ſingle act of coition than it would be by twenty in the common way. It is better, therefore, for moſt perſons, to keep to the liniments and Tincture only, that their ſtrength and ability may be always equal to their inclination. To recover the tone and vigour of the internal parts in women, uſe the following: Take cloves, nutmegs, ginger, Spaniſh angelica, of each one dram; aloes wood, mace, cardamum-ſeeds, of each one ſcruple; mint-leaves, one handful; cantharides, two drams; infuſe them in a pint of white wine, and boil over a gentle fire till it is reduced to twelve ounces; then ſtrain it, and inject two ounces warm into the uterus every night going to bed, taking at the ſame time forty drops of the Lunar Tincture in a wine-glaſs of cold water. When the parts abound with moiſture, reſtringent or aromatic fumigations may be uſed to advantage, as in the caſe of the whites, and of the falling down of the womb and fundament. The ingredients proper in the preſent caſe, are ſtorax, cloves, nutmegs, caſtor, ginger, Spaniſh angelica root, and galingals; equal quantities of theſe may be taken powdered, and mixed together, and about an ounce of the mixture is ſufficient to burn at a time, according to the directions in the place above referred to. Where other things have failed, the cold bath hath been of ſervice to both ſexes, eſpecially in ſome phlegmatic conſtitutions; a journey to Bath alſo, or Tunbridge, and drinking the waters for ſome time, has been attended with good ſucceſs. See farther upon this ſubject in my Key to Phyſic, p. 189—194; and, for ſome curious and intereſting caſes, ſee p. 330 of the ſame work.

Having

Having before cautioned againſt the too frequent uſe of venery, eſpecially for thoſe who ſeem to be infertile through weakneſs, it will be proper juſt to hint the moſt auſpicious ſeaſons for performing the conjugal act to good purpoſe. It has been found, that, though a woman may conceive at any time during the three weeks that her courſes are entirely off, yet ſhe is more apt to do ſo immediately after their ceaſing than at any other time between the periods of their return. This hint may be made uſe of by weakly people, where the man and the woman are equally prudent and temperate. I ſhall add a few words, directed peculiarly to the men, who find themſelves incapable to propagate their ſpecies, though they have not any natural defect in the inſtruments of generation: for as to abſolute impotency and incapacity of copulation, as it muſt be manifeſt to the ſight, either from the want of erection, or due proportion of the penis, or a deficiency of the teſticles, ſo it is what no man will pretend to cure; on which account our laws have given the wife a remedy, where there can be none for the huſband, by allowing her to ſue out a divorce, and marry another man. A ſimple gleet, brought on by ſelf-pollution, is one of the greateſt cauſes of inſufficiency. It greatly debilitates the whole man, is attended with weakneſs, and oftentimes pain in the back, heavineſs and pain in the teſticles, and without help uſually terminates in that kind of conſumption which is called a *tabes dorſalis*, or conſumption of the back. It is a conſtant oozing of a clear ſeminal matter, which diſtinguiſhes it from an impure venereal running. A man that is troubled with this ſhocking complaint, either from natural infirmity or habitual vice, ſhould never attempt to propagate his ſpecies till ſuch time as he is perfectly cured; for, beſides that his endeavours would be ineffectual, they would infallibly heighten his infirmity. The beſt medicines in the whole body of phyſic for this dangerous diſtemper, are thoſe juſt before mentioned; and the ſame directions ſhould be exactly followed by thoſe men whoſe ſeed is rendered too thin and watery, though without any ſuch relaxation of the ſeminal veſſels as occaſions a ſimple gleet; and alſo by thoſe men who through weakneſs of the parts are apt to emit their ſeed as ſoon as they entertain any amorous thoughts, by which means they are not only hindered from copulation, but even from fruition itſelf. In both theſe caſes, as well as in a ſimple gleet, abſtinence from conjugal embraces, and the uſe of the foremen-tioned balſamic medicines, with invigorating food, ſuch as jellies, broths, oyſters, and all agglutinating meats, are the moſt effectual means of obtaining a cure.

There is a certain occult and ſecret ſpecies of barrenneſs, that cannot be attributed to any of the cauſes before aſſigned, or indeed to any viſible cauſe at all. This happens when no manner of defect is diſcoverable, on the ſide either of the male or female, and yet they ſhall, againſt their inclinations, remain without

iſſue. Many odd conjectures have been ſtarted on this account, concerning the poſſible cauſes of ſterility, when neither perſon appears to be in fault. Some ſuperſtitious people have imputed it to ſorcery, and recourſe has been had to incantations, amulets, charms, and magic rites, in order to the cure. But people of underſtanding give no heed to ſuch fables, being ſatisfied, that, when both parties are of ſuitable years, briſk, and not labouring under any apparent weakneſs or indiſpoſition, if fertility do not follow their nuptial intercourſe, there muſt be ſome real and mechanical reaſon for it, though not apparent to the ſenſes. When there appears no deficiency or defect in either the man or woman, and none of the before-mentioned cauſes of barrenneſs exiſt, we muſt then recur to the real phyſical cauſe, which is conſidered and underſtood by very few. It is what is called the *temperament*, *conſtitution*, or *complexion:* if the man be of a hot temperament, the woman ſhould be of a cold one; if he be of the dry temperament, ſhe ſhould be of the moiſt: but, if both be of a dry or both of a moiſt conſtitution, they cannot propagate, though neither may be barren, ſingly conſidered, and, if joined with an apt conſtitution, might both become fruitful. It muſt fall under every one's obſervation, that both women and men, who marry more than once, will have children by one marriage, and not by another; which will certainly confirm what is above aſſerted. And again, there are other cauſes in nature, much more abſtruſe and occult than the foregoing, whereby men and women prove barren, though to all external appearances their conformation is every way congenial to procreation. This cauſe, foſtered in the mother's womb, and having its root in the conſtruction of the zodiacal ſigns and planetary influence under which the embryo is conceived and nouriſhed, is totally incurable. So likewiſe the variety of parts, both male and female, have their cauſe in the conſtruction of the heavenly bodies, which predominate and govern their conception and birth; for it is certainly found, that, if the Sun be configurated with the Moon, in the degrees of Mercury, and Mars and Venus irradiate the ſame, in maſculine ſigns, that the men born under ſuch an influence will exceed in that which is natural, having thoſe parts in exceſs which are proper to men; but the women ſo born will have a conformation of parts preternatural and mixed; but, if Mars and Venus be conſtituted after a maſculine manner in feminine ſigns, the men will be ſubject to a mixture of ſex, and the women to exceſs of parts, and violent luſt. All theſe ſpeculations, wonderful as they are, and a thouſand others, whoſe effects, though unſeen, are moſt ſenſibly felt, are fully explained in my Illuſtration and Diſplay of the Occult Sciences; where it is plainly ſhown, that, the more we enquire into the pathleſs ways of nature, the more readily we deduce a radical cauſe for all her operations.

Of SYMPATHY and ANTIPATHY.

TO underſtand the properties of ſympathy and antipathy, is, in fact, to take into our comprehenſion the univerſal ſyſtem of nature, with her obvious and occult properties, and the gradations and conſent of parts of all its atoms. This ſtudy becomes all men; but more eſpecially thoſe who practiſe phyſic, ſince their effects not unfrequently preſerve life, or deſtroy it; and, in the beginning, middle, and end, of diſeaſes, the reſult may be always known. Sympathy and antipathy are found in all things; and, if traced, account for thoſe wonderful occurrences in nature, which otherwiſe appear altogether inexplicable. All vegetable and mineral productions have not only a wonderful ſympathetic power with their own ſpecies, but ſo likewiſe has all animated nature; and more particularly man. It is certainly true that this celeſtial inviſible principle is born with us, and emanates from the centre of the intellectual ſoul, combined with the terreſtrial body; and, paſſing through its nerves, forms an atmoſphere around us, whereby the ſenſations of ſympathy and antipathy, of love and hatred, of joy and grief, and all the propenſities of human nature, are by a colliſion of rays, which reciprocally cohere or repel whatever comes in contact with them, that the effect is made manifeſt to our ſenſes. Hence it is, that ſavoury high-ſeaſoned meats ſeen or ſmelt, excite the appetite and affect the glands and parts of the mouth; that an impudent or ſhameful thing ſeen or heard affects the cheeks with bluſhes; and ſo, on the contrary, if a thing pleaſe, it affects the præcordia, and excites the muſcles of the face and mouth to laughter; if it grieve, it affects the glands of the eyes, ſo as to occaſion tears, and irritates the muſcles of the face into an aſpect of crying; ſo kiſſing, though the delirium or pleaſure is excited by the lips, yet the moſt ſenſible irritation falls upon the genital parts, which are rendered turgid, ſtiff, and apt for procreation, as the ſum and centre, or full end and completion, of all ſublunary enjoyments. And hence the cauſe of thoſe indeſcribable paſſions, love, luſt, inclination, ſympathetic affection, &c. for, if we ſee a limb amputated, or a violent blow ſtruck, we cannot help feeling a ſympathetic pain in the ſelf-ſame member of our own bodies: which is the reaſon why thoſe perſons can never make good ſurgeons, whoſe conception and birth were irradiated by the ſtrong ſympathetic rays of benefic ſtars; or, as it is commonly termed, inherit ſtrong ſympathiſing paſſions. So again, if either man or woman look upon brutes in the act of copulation, it ſympathetically affects the ſame organs in themſelves, and excites to laſciviouſneſs and luſt.

Some perſons, we find, are ſo delicately organized, as to become violently enamoured with an object at firſt ſight, without ever having exchanged a ſingle word; and it often happens that there is no alternative but death, or the immediate

diate enjoyment of the beloved perſon! This is produced by a ſympathy of ſouls, united by a combination of ſelf-reflected rays, which reciprocally cohere from the male to the female, and from the female to the male, by the action of the intellectual ſoul on the ſolids and fluids of the body; and as this combination or colliſon of rays is formed according to the different principles from whence it acts, and the organs of ſenſe on which it ſtrikes, ſo it excites a ſweet vibratory delirium in the brain, which conſtitutes that ardent affection and longing deſire for the perſon, whoſe genial effluvium had thus drawn forth or excited the paſſion of love. And it is by this alone we can account for thoſe perfections of beauty and merit diſcoverable by one man's ſenſes, to which another will continue for ever inſenſible and blind.

It is from a ſimilar cauſe that we define the longing of a pregnant woman, and its effects upon the fœtus; for as like produces its like, and the child takes its frame from the external members of its parents in the act of coition, ſo there is a ſympathy and concordancy betwixt the child's members and thoſe of its mother; therefore, whatever member the mother touches at the time her ſoul is drawn forth in longing after ſome elementary ſubſtance, the ſame member of the child receives the impreſſion, and an external mark is produced, according to the nature and quality of the thing longed for. But this impreſſion can only take place before the embryo has quickened; for, till then, the child is paſſive, and the generative eſſence of the mother active, whence follows a conſent of parts; but, when the light of life is kindled in the fœtus, it lives in its own ſpirit, and is no longer ſubject to this affection, nor ſo liable to abortion.

We might here adduce ten thouſand curious inſtances of the effects of ſympathy and antipathy, as well from natural hiſtory as from the Occult Sciences; but, as this would be foreign to my purpoſe, and too much enlarge the preſent publication, I ſhall reſerve a very full diſcuſſion of this ſubject for a work I ſhortly intend to publiſh,* intituled, "A Key to Phyſic, and the Occult Sciences;" in which I ſhall lay down ſuch rules as to prevent a poſſibility of miſtaking the patient's caſe, or of failing of a cure, if the lamp of life be not too far exhauſted; and ſhall alſo more particularly elucidate the aſtrologic ſcience, in order to throw new lights on ſome intereſting parts of my former publications; and alſo to illuſtrate the ſcience of Animal Magnetiſm, which is wholly founded on the principles of ſympathy and antipathy.

* This work is now publiſhed in thirty Numbers, printed uniformly with the preſent, and intended to bind with it. See p. 276 & ſeq.

CULPEPER's DISPENSATORY, FOR FAMILY USE;

CONTAINING

A choice SELECTION of invaluable PRESCRIPTIONS for almost all DISEASES incident to the HUMAN BODY.

AROMATIC OR SPICE WATER.

TAKE of white canella, half a pound; freſh outward peel of lemons, four ounces; leſſer cardamum ſeeds, two ounces; French brandy, two gallons. Let them ſteep together for four days; and then diſtil off two gallons.

This is a warm ſerviceable cordial; for it gratefully invigorates the animal ſpirits, ſtimulates the nerves, and thus diſſolves cold viſcid humours, and expels flatulencies. It is an excellent ſtomachic, helps digeſtion, and ſtops vomiting; and as a carminative is uſed in the rougher cathartics. Half a wine-glaſs of it is a doſe in windy and painful complaints of the ſtomach and bowels, and to be repeated occaſionally.

PLAGUE AND FEVER WATER.

Take roots of maſter-wort, a pound and a half; angelica ſeeds, half a pound; elder-flowers, leaves of ſcordium, of each four ounces; French brandy, three gallons. Steep them together for the ſpace of four days; and then draw off, by diſtillation, two gallons and a half.

The ingredients are well choſen for the purpoſes intended; it being deſigned as a high cordial in very low and languid caſes, and to raiſe the ſpirits in the plague and malignant fevers with depreſſions. If a fifth part of diſtilled vinegar be added, it is then termed *aqua epidemia acida*, which is a very powerful ſudorific, and reſiſter of putrefaction in all peſtilential and other putrid fevers.

EYE-WATER.

Take white vitriol, half a pound; water, four pints. Boil them until the vitriol is diſſolved, and then filter the liquor for uſe.

This is calculated to cool and repel thoſe ſharp rheums and inflammations which ſometimes fall upon the eyes, where the veſſels, being weak and thin, are often unable to reſiſt duly the impulſe of the blood, unleſs they are conſtringed and ſtrengthened by ſome ſuch collyrium. It is likewiſe good to clear them of beginning films and ſpecks. If it ſhould prove too ſharp for tender eyes, it may be diluted with a little ſpring or roſe water.

ANODYNE BALSAM.

Take of ſaponaceous balſam, or opodeldoc, a pound and a half; of liquid laudanum, half a pound. Mix them for uſe.

This is certainly an extremely penetrating and reſolvent anodyne, both for internal and external uſe; being a moſt excellent medicine for procuring eaſe in the extremities of pain, and in nervous and nephritic cholics. It cleanſes all the viſcera and glandular parts; therefore good in the jaundice and ſuch diſtempers of the urinary paſſages as proceed from the obſtruction of gravel or ſlimy humours. Inwardly it may be given from 20 to 40 drops; and outwardly, applied to the pained part, does mighty ſervice, a rag being dipped in it, and retained thereon.

ALEXETERIAL BOLUS.

Take of Virginian ſnake-root, fifteen grains; of caſtor, ten grains; of camphor, three grains; ſyrup of ſugar, enough to mix and make them into a bolus.

This is a powerful alexipharmic, and is given in moſt kinds of fevers, eſpecially the worſt and more malignant ſort, attended with convulſions and deliria. It is hardly ever omitted, when the pulſe and ſpirits begin to flag in the progreſs of a putrid fever, ſmall-pox, meaſles, miliary fever, &c. It is good in nervous and paralytic caſes, which proceed from too much humidity; as alſo in the febricula, whether hyſterical or hypochondriacal. If plentifully preſcribed, it requires to be well diluted with ſmall liquors; and, thus managed, it ſeldom fails of raiſing a diaphoræſis, and bringing the diſtemper to a criſis.

DIAPHORETIC BOLUS.

Take of compound powder of contrayerva, and of crude ſalt of ammoniac, each one ſcruple; ſyrup of ſugar, as much as is ſufficient to make a bolus.

This penetrates into the moſt intimate parts, and is a noble aperient, ſudorific, antiſeptic, and diuretic. Hence it becomes proper in caſes where perſpiration is to be augmented; and in fevers, in which the diſorder is to be eliminated by the cuticular diſcharges. It is preſcribed, with a draught of the plague-water, to remove cachectic and anaſarcous ſwellings.

BOLUS OF JALAP WITH MERCURY.

Take of choice jalap, one ſcruple; calomel, from five to ten grains; ſyrup of ſugar, a ſufficient quantity. Mix them together into a bolus.

This is a proper bolus in moſt caſes where a briſk purgative, preceded by a clyſter, is neceſſary, either to make a revulſion after bleeding in inflammatory ſwellings and obſtructions of the parts contained in the head, neck, or thorax; or to make an evacuation of the inteſtines and adjacent viſcera of the abdomen. Thus may a bilious fever be carried off, when it has lingered, and there is little probability of its ending critically by any other way: as a diaphoretic and hydrogogue, it is of uſe in dropſies, defluxions of the head, eyes, and ears; as alſo in humoral coughs, and many obſtinate chronical diſtempers. It deſtroys worms, cures a violent gonorrhœa and fluor albus. It is alſo good to cleanſe the bowels from their redundant viſcid mucus, that often clogs or ſhuts up the chylopoietic ſyſtem, ſo as to hinder the entrance and proper effects of other medicines. In intermitting fevers it is a ſpecific.

A PECTORAL BOLUS.

Take of ſpermaceti, fifteen grains; of gum ammoniacum, ten grains; of the volatile ſalt of hartſhorn, ſeven grains. Mix and make them into a bolus.

This is an excellent balſamic in many diſtempers of the breaſt; and gently deterges and heals. In coughs, pleuriſies, and inward impoſthumations, where the mucus of the bowels has been abraded by acrimony, and choler; as alſo in diarrhœas and dyſenteries, this is a very good healer. In ulcerations of the kidneys and bloody urine, it is likewiſe a very ſuitable medicine; and, by ſoftening and relaxing the fibres, it contributes frequently to the expulſion of gravel. It may be taken once or twice a-day, with ſome proper emulſion, draught, or julep, according to the indications.

The RHUBARB BOLUS with CALOMEL.

Take of the beſt purgative rhubarb, twenty-five grains; of calomel, five grains. Mix and make them into a bolus, with as much ſyrup of ſugar as will ſuffice.

This is an admirable medicine in moſt caſes where purging is neceſſary, to cleanſe the firſt paſſages of any thing that hinders the ſucceſsful operation of other alterative medicines. See the virtues of the Jalap Bolus, which this nearly anſwers, but is more aſtringent, hepatic, ſtomachic, and a purger of the urine and ſabulous concretions.

EMOLLIENT CATAPLASM.

Take of the crumb of bread, eight ounces; white ſoap, one ounce; freſh cow's-milk, a ſufficient quantity. Boil them a little, and ſpread for uſe.

This is anodyne, penetrating, and reſolvent; therefore applied to the ſoles of the feet in fevers, to the joints when afflicted with the gout, and cauſes ſometimes the exudation of a great quantity of ſerous matter; and to white ſwellings.

SUPPURATING CATAPLASM.

This is made by adding to the foregoing cataplaſm, of raw onions bruiſed, one ounce and a half; baſilicon ointment, one ounce.

This is good to draw and ſuppurate all kinds of tumours; and to ripen, break, and cleanſe, impoſthumations.

APERIENT ALE.

Take of old muſtard-ſeed, ten ounces; long birthwort-root, ſix ounces; tops of leſſer centaury, two ounces; ſavin, one ounce; new ſmall ale, ten gallons.

This cleanſes the womb, excites the menſtrual diſcharges, and forwards delivery. It is ſerviceable in hyſterical diſorders, and good to looſen and diſcuſs viſcidities; and, therefore, excellent in all paralytic caſes, and the decays and defluxions attending old age.

CEPHALIC ALE.

Take of wild valerian-root, two ounces; whole muſtard-ſeed, ſix ounces; Virginian ſnake-root, two ounces; roſemary, or ſage, three ounces; new ſmall ale, ten gallons.

This is good againſt epilepſies, apoplexies, palſies, and all diſeaſes of that kind, and vertigoes from uterine obſtructions; it is alſo of uſe in almoſt all nervous complaints; eſpecially ſuch as ariſe from too great moiſture and cold.

STRENGTHENING CONFECTION.

Take of bole ammoniac prepared, three ounces; tormentil roots, nutmegs, olibanum, of each two ounces; opium, one dram and a half; ſyrup of dry roſes, thrice the weight of the powders. Mix them according to art.

This alexipharmic, anodyne, and aſtringent, vulnerary, is recommended in immoderate evacuations of the abdomen. A dram or two of it, at a doſe, along with the chalk julep, will give an effectual check to the diſorder. It is ſucceſsfully preſcribed for diarrhœas, as in the meaſles, ſmall-pox, or fevers; as alſo for relaxations, hæmorrhages, and hurts in the time of pregnancy; and likewiſe for the *fluor albus*, and ſeminal weakneſs.

ANTIHECTIC DECOCTION.

Take of the roots of comfrey, eringo, each half an ounce; conſerve of roſes, two ounces; water, three pints. Boil theſe ingredients together, till there remains a quart of liquor after ſtraining; to which add of ſweet ſpirit of vitriol, forty drops.

This is grateful and ſtrengthening; it reſtrains the ſaline particles of the blood, and hinders it from ruſhing too impetuouſly through the lungs; therefore it takes place in newly-begun conſumptions, hectic fevers, night-ſweats, &c. where the colliquation of the humours cauſes a waſting of the muſcular parts.

COM-

COMMON DECOCTION.

Take of mallow-leaves, camomile-flowers, each one ounce; water, two quarts. Boil till one quart of the liquor is waſted: then ſtrain out the remaining decoction for uſe.

This is emollient and carminative, therefore accounted a good anodyne, and excellent againſt gripes, nephritic pains, ſtranguries, and heat of urine; as alſo for cramps, and ſuch-like ſpaſms. It is likewiſe uſed for lotions and clyſters.

THE DIURETIC DECOCTION.

Take of the roots of parſley, or thoſe of fennel, one ounce; ſeeds of wild carrot, three drams; pellitory of the wall, half an ounce; raiſins of the ſun, two ounces; water, three pints. Boil them together, till there remains a quart of liquor after ſtraining; to which add, of nitre, one dram.

This abſterges much ſlime and viſcid adheſions from the ſtomach and bowels; cleanſes the viſcera, particularly the kidneys; keep the juices cool and fluid; and greatly aſſiſts their diſcharge by urine, eſpecially in uterine and hyſteric caſes.

VULNERARY DECOCTION.

Take of the herb ground-ivy, leaves of plantain, each half an ounce; water, three pints. Boil them till there remains a quart of liquor after ſtraining; to which add, of white ſugar, half an ounce.

This is cooling, abſterſive, and vulnerary; and preſcribed as an aſtringent in diſtempers of the lungs, chiefly for ſuch conſumptions as proceed from ſharp thin tumours, weakneſſes, and ſpitting of blood.

ANTIDYSENTERIC ELECTUARY.

Take of the ſtrengthening confection, one ounce; balſam of Lucatellus, (diſſolved in the yolk of an egg,) half an ounce. Mix them together.

This is an excellent internal vulnerary in an obſtinate bloody flux, to prevent abortion, &c. and very aptly formed for correſponding with ſuch purpoſes. The confection has its ſhare in accompliſhing a cure, partly from its aſtringency, partly from its opiate quality, by rendering the veſſels inſenſible of the pungency of the morbific particles; while the virtues of the balſam agglutinate, heal, and ſtop up, the mouths of the veſſels, and ſheath the acrimonious humours which abrade the parts.

BALSAMIC ELECTUARY.

Take of conſerve of roſes, two ounces; balſam of Lucatellus, (diſſolved in the yolk of an egg,) one ounce. Mix and make them into an electuary.

This is a noble medicine, eaſy to take, and ought to be repeated on the urgency of ſuch coughs as give ſuſpicion of tubercles, ulcerations, and decays, of the lungs. It diſſolves tough phlegm in the bronchia, cures catarrhs and coughs from tickling defluxions; it repairs and heals inward exulcerations and bloody diſcharges, eſpecially of the kidneys, bladder, and uterus. In ſeminal weakneſſes, old gleets in both ſexes, there can be nothing better contrived. The quantity of a nutmeg may be taken two or three times in a day, with a draught of the antihectic decoction.

CEPHALIC ELECTUARY.

Take of wild valerian-root, miſletoe of the oak, each one ounce; ſyrup of ſugar, a ſufficient quantity. Mix them into an electuary.

This is calculated for diſorders of the head, and is in great eſteem for epilepſies and inveterate head-achs. It is frequently preſcribed in apoplexies, vertigoes, and convulſions, from uterine obſtructions.

ELECTUARY AGAINST THE PILES.

Take of lenitive electuary, two ounces; ſulphur vivum, half an ounce. Make thereof an electuary.

The quantity of a nutmeg is to be taken of this every morning and night; it will keep the belly moderately lax, and greatly eaſe the piles.

LENITIVE ELECTUARY.

Take three ounces of polopody-roots, and three quarts of water. Boil till two quarts are waſted; adding, towards the end of the coction, two ounces of ſena, and half an ounce of coriander-ſeeds. Strain out the liquor, add to it four pounds of white ſugar, and boil to the conſiſtence of a thick ſyrup; with which mix a pound of the pulp of French prunes; half a pound of the pulp of caſſia, and the ſame quantity of tamarinds. Make the whole into an electuary.

This cools and purges very gently, and is convenient enough to add in clyſters. Internally it is more proper to prevent coſtiveneſs than to be exhibited as a regular cathartic. It is alſo intended to cleanſe the liver and other viſcera.

STRENGTHENING ELECTUARY OF BARK.

Take of Peruvian bark, one ounce and a half; colcothar of vitriol, three drams; ſyrup of ſugar, a ſufficient quantity. Make them into an electuary.

In robuſt conſtitutions this is preſcribed for ſtubborn agues; and alſo for fluxes and hæmorrhages. It promotes diſcharges by urine, deſtroys worms, brings them away, and ſtrengthens the fibres; but in thin hectical habits it is not ſo proper. The colcothar here prevents the bark from going off by ſtool, which it is ſometimes apt to do; and opium likewiſe will have the ſame effect.

ELECTUARY AGAINST FLUXES.

Take of the ſtrengthening confection, two ounces; extract of logwood, one ounce; ſyrup of dry roſes, a ſufficient quantity. Make them into an electuary.

This

This is an aſtringent, and good to fortify the ſtomach and bowels when weakened by a diarrhœa; and is much eſteemed of late for its virtues in curing a dyſentery.

WARM PLASTER.

Take of gum-plaſter, one ounce; bliſtering-plaſter, two drams. Melt them together over a gentle fire.

The chief intention of this is to raiſe bliſters, and to create a ſtimulus in a languor or ſtupor of the nervous ſyſtem; to diſſolve a viſcoſity or ſtrineſs of the juices, and hinder their tendency to a coagulation; or to cauſe a derivation and diſcharge of ſome morbific humour, and prevent its returning into the blood; therefore it is eſteemed uſeful in ſome inflammatory fevers, dropſies, and certain ſtages of the cryſtalline or watery ſmall-pox; eſpecially if the puſtules ſubſide, and the extremely viſcid matter of the diſeaſe can neither be brought to ſuppurate, nor be carried off by diuretics. It remarkably affects the kidneys and bladder, and provokes urine, not by an eaſy natural ejectment, by rather by an erytiſmus from its acrid ſalts that cauſe a ſtrangury, which ſhould be guarded againſt by broths and emulſions. It is good againſt a mortification, and reckoned an efficacious cleanſer and ſcourer of the urinary paſſages and uterus, when obſtructed with ſlough and viſcidities. But its uſe requires the higheſt caution and prudence; hence it is not every one who muſt think himſelf qualified to meddle, without diſtinction, with remedies, which are ſure to do good or hurt according as they are adminiſtered.

COMMON PLASTER.

Take of litharge prepared, three pounds; oil of olives, ſix pounds. Boil them up to a due conſiſtence.

This is to ſupply the place of the diachylon plaſter of former diſpenſatories; and is eſteemed more emollient, maturant, and reſolvent. It will alſo incarnate and cicatrize.

DEFENSIVE PLASTER.

Take of litharge prepared, two pounds; oil of olives, four pounds. Boil them almoſt to the conſiſtence of a plaſter, in which qualify ſix ounces of yellow wax, and four ounces of olibanum. Then add ſix ounces of bole ammoniac prepared, two ounces of dragon's blood in powder, and four ounces of Venice turpentine.

This is employed to conſolidate fractures, to ſtrengthen luxations and weakneſſes of the loins and joints; and is alſo ſerviceable for ruptures and chilblains.

BLISTERING PLASTER.

Take of Burgundy pitch, twenty ounces; Venice turpentine, cantharides in powder, each ſix ounces.

This is a powerful epiſpaſtic, and is applied either to the head, between the ſhoulders, or to the ſoles of the feet. See its uſe in the Warm Plaſter. But when applications are made to the feet, with an intent to ſtimulate ſtrongly, excite pain therein, and relieve the head, cataplaſms compoſed of equal parts of ſcraped horſe-radiſh and powdered muſtard-ſeed, moiſtened with old yeaſt, will anſwer the deſign expeditiouſly, ſtrongly, and effectually.

MERCURIAL PLASTER.

Gum plaſter is ſubſtituted here for diachylon.

This admirably warms, ſoftens, and diſcuſſes, all indurations and hardened tumours, be they chalky, ſcrophulous, or venereal.

STOMACH PLASTER.

Take of yellow wax, eight ounces; tacamahaca in powder, palm-oil, each four ounces. Melt them together, and add of cloves in powder, two ounces; expreſſed oil of mace, one ounce and a half. Mix and make them into a plaſter, which is to be moiſtened, when freſh ſpread, with ſome drops of diſtilled oil of mint.

This is intended as a warm carminative, and cordial, application to the ſtomach, and exerts very conſiderable effects when ſuch things are wanted; therefore it is uſeful in flatulencies, gripes, and all complaints ariſing from indigeſtions; and a cold weak ſtomach cannot well fail finding relief from its uſe.

COMMON EMULSION.

Take of ſweet almonds, one ounce; water, one quart. Make them into an emulſion; to which add of white ſugar, two drams. If three drams of gum arabic be previouſly boiled in the water, the preparation is called

ARABIC EMULSION.

Either of theſe is ſingularly uſeful in many emergencies, particularly in acute diſtempers, and the gravel. In heat of urine and ſtranguries, either from acrimonious humours or the ſalts of epiſpaſtics, they give immediate eaſe; and ought to be drunk while freſh, half a pint at a time, and pretty often. There are other ſorts of emulſions, which are calculated for diuretics, coolers, and pectorals.

ANODYNE CLYSTER.

Take of the infuſion of linſeed, ſix ounces; liquid laudanum, forty drops. Mix them together.

This is excellent to aſſuage pains in lyenteries, and inflammations of the uterus and bladder, by reaſon of a proximity and conſent of parts.

ANTICHOLIC CLYSTER.

Take of the common decoction, half a pint; tinctura ſacra, one ounce; common ſalt, one dram; linſeed oil, two ounces. Mix them together.

This falls in with the view of unloading the bowels of their coſtive contents, and conſequently procures an immediate relief on many occaſions, chiefly in flatulencies,

gripes,

gripes, and bilious cholics. The addition of the ſalt, by a mild gentle ſtimulus, inſures its effects. It likewiſe deſtroys worms, particularly the aſcarides, if aſſiſted with a few grains of calomel by the mouth.

THE PURGING CLYSTER.

Take of the common decoction, half a pint; white ſoap, one ounce; ſyrup of buckthorn, an ounce and a half. Mix them according to art.

This is penetrating, deterſive, and capable of diſſolving indurations and grumous viſcidities of the inteſtinal tube, eſpecially in the jaundice; and by ridding the bowels of their concreted contents may prevent an inflammation. It is uſeful in diſorders of the head, and may cauſe a revulſion in the fæculent vomitings.

EXPRESSION OF MILLEPEDES.

Take of live millepedes, (commonly called wood-lice,) three ounces; ſimple fennel-water, one pint; compound horſe-radiſh water, half a pint. Bruiſe the millepedes, gradually adding to them the diſtilled waters; and afterwards preſs out the liquor.

This is an excellent diuretic, ſweetener and cleanſer of the blood, and a moſt efficacious medicine in all chronic caſes that are to be relieved by promoting the urinary diſcharges, as are many inveterate ulcers, ſtrumas, and ſcrophulous diſorders, and ſuch as frequently are the forerunners of ſcorbutic dropſies, from a retention of ſuch humours as obſtruct the viſcera, and fill the whole habit with water and viſcidities. Hence it is of ſingular efficacy in the ſtone, jaundice, nephritic pains, dyſury, cholic, and aſthma.

AROMATIC FOMENTATION.

Take of cloves, mace, each one dram; red wine, one pint. Boil them a little, then ſtrain out the liquor.

This, applied warm to the abdomen, will be found of admirable ſervice in cholics, and for relaxed weak ſtomachs that are ſubject to diſtention from flatulency. It may be uſed to the head with ſucceſs in any diſorders from too much moiſture and pituitous defluxions.

STRENGTHENING FOMENTATION.

Take of oak-bark, one ounce; pomegranate-peel, half an ounce; forge-water, three pints. Boil them till there remains a quart of the ſtrained liquor; to which add of roch-alum, two drams.

This is proper for hæmorrhages, whether uterine, hæmorrhoidal, or from any other part. It is alſo good to foment ſprains, fractures, or paralytic limbs; and will help to check immoderate vomitings.

THE COMMON GARGLE.

Take of water, ſix ounces; nitre, one dram; honey of roſes, one ounce. Mix them together. To this gargariſm are ſometimes added, of ſweet ſpirit of vitriol, fifteen drops.

This is proper to cleanſe and ſcour the mouth and throat from ſlough, and the phlegmatic matter which ſtuffs and tumefies the glands. It is alſo good to cool and deterge the mouth when ſore, parched, and dry with a fever.

EMOLLIENT GARGLE.

Take of marſh-mallow roots, two ounces; figs, in number four; water, three pints. Boil till there remains one quart of liquor, which ſtrain out for uſe.

This is excellent to aſſuage pain and inflammation in the throat or mouth, to maturate any ulcer therein, and to mollify the bliſtered tongue and fauces in a ſalivation. The learned and accurate Sir John Pringle obſerves, that in the inflammatory quinſey, or ſtrangulation of the fauces, little benefit ariſes from the common gargles; that ſuch as are of an acid nature do more harm than good, by contracting the emunctories of the ſaliva and mucus, and thickening thoſe humours; that a decoction of figs in milk and water has a contrary effect, eſpecially if ſome ſal-ammoniac be added; by which the ſaliva is made thinner, and the glands brought to ſecrete more freely; a circumſtance always conducive to the cure.

SALINE DRAUGHT.

Take ſalt of wormwood, one ſcruple; lemon-juice, half an ounce; white ſugar, one dram. Mix them together.

This is an effectual remedy to ſtop vomitings, and is of ſingular uſe in fevers, eſpecially thoſe of the intermittent kind, when the bark often fails. It cauſes gentle breathing ſweats, and may be repeated every five or ſix hours occaſionally.

ANTISCORBUTIC INFUSION.

Take of water-trefoil, two ounces; oranges, half an ounce; boiling water, two quarts. Let them ſtand in infuſion for a night in a cloſe veſſel; afterwards ſtrain the liquor, and then add to it of compound horſe-radiſh water, half a pint.

This is effectual againſt ſcrophulas, the king's evil, and all obſtinate ſcorbutic diſeaſes. In the rheumatic, dropſical, and cachectic, habits, it will be of good ſervice. It likewiſe gives due warmth to the nerves, which in paralytic caſes they are deſtitute of. It may be drunk at diſcretion, and the uſe of it continued according to the exigency of the diſorder.

INFUSION OF LINSEED.

Take of linſeed, two ſpoonfuls; liquorice-root, ſliced, half an ounce; boiling-water, three pints. Let them ſtand to infuſe by the fire for ſome hours, and then ſtrain off the liquor.

If an ounce of the leaves of colt's-foot be added to theſe ingredients, it will then be the Pectoral Infuſion. Both theſe are emollient mucilaginous liquors, and may

be taken with advantage as ordinary drink in difficulty of making water; and in coughs and other complaints of the breaſt.

BALSAMIC INJECTION.

Take of balſam copaiba, half an ounce; the yolk of one egg. Work them well together, and gradually add of lime-water, ſix ounces; honey of roſes, two ounces. Mix the whole well together.

This is excellent for the conſolidation of wounds, and to cleanſe and heal ulcerations, gleets, and ſeminal weakneſſes, if uſed two or three times a-day; and for corroborating the nervous parts, which have been relaxed by the diſeaſe.

THE MERCURIAL INJECTION.

Take of quickſilver, balſam copaiba, each half an ounce. Beat and work them together, till the quickſilver is extinguiſhed; then put to the maſs the yolk of an egg. Mix the whole very well together, gradually adding of roſe-water, half a pint.

This is calculated for gonorrhœas, and venereal ulcers in the urethra, vagina, and uterus; the quickſilver deſtroys the virulency, while the balſam heals and ſheathes the excoriated parts from the acrimony of the urine.

THE CORDIAL JULEP.

Take of alexeterial water, four ounces; aromatic water, two ounces; ſaline aromatic ſpirit, tincture of ſaffron, each two drams; white ſugar, half an ounce. Mix, and make them into a julep.

This is a high cordial, and will bring on an effectual moiſture; conſequently remove all wearineſs, heat, and tenſion, of the parts; therefore it is of great ſervice in the depreſſed ſtate of fevers, fatigue from exceſſes, and lowneſs of ſpirits. A few ſpoonfuls, drunk every three or four hours, will, by its enlivening quality, communicate an agreeable ſenſation. It is likewiſe very aptly preſcribed with powders and boluſes.

DIAPHORETIC JULEP.

Take of alexeterial water, four ounces; ſpirit of mindereus, two ounces; volatile ſalt of hartſhorn, ten grains; ſyrup of meconium, one ounce. Mix them together.

In ſlow malignant fevers, with cold clammy ſweats, pale viſage, a low intermitting pulſe, and where great reſtleſſneſs prevails, this julep will be ſingularly beneficial. A tea-cup full may be given and repeated every four or five hours, till ſome criſis appears, and the diſtemper abates.

DIURETIC JULEP.

Take of ſpirit of mindereus, four ounces; compound horſe-radiſh water, two ounces; ſyrup of marſh-mallows, three ounces. Mix, and make a julep; to which may be added occaſionally, of ſpirit of amber, one dram.

This is ſtrongly diuretic; hence a good remedy againſt a ſuppreſſion of urine from any cauſe, the gravel, and nephritic pains. It will alſo promote and aſſiſt an urinary criſis; and may be repeated as the urgency of the ſymptoms indicate.

THE FETID JULEP.

Take of rue-water, ſix ounces; aſſafœtida, one dram and a half. Diſſolve the aſſafœtida in the water, and add to the ſolution, of antihyſteric water, two ounces; diſtilled oil of hartſhorn, twenty drops, received upon ten drams of white ſugar. Mix the whole well together.

This is ordered in hyſteric affections, and a defective ſtate of the menſes, and ſometimes in hypochondriacal caſes. A tea-cup full may be taken three or four times a-day.

THE SALINE JULEP.

Take of mint-water, ſyrup of lemons, each two ounces; ſalt of wormwood, one dram. Make them into a julep.

This is an admirable remedy in vomitings and hiccups. It has a mild and innocent virtue, though powerfully attenuating and reſolving, diuretic, and ſudorific: hence it is excellent in rheumatiſms, fevers, and all diſorders from a ſizineſs of the blood. Two or three ſpoonfuls are given every five or ſix hours.

THE ANODYNE LINAMENT.

Take of nerve-ointment, three ounces; balſam of turpentine, one ounce. Mix them together.

This is a warm invigorating topic, and may be uſed with good effect, to excite the nerves to action when too languid. It is applied to paralytic and numbed limbs, to reſtore a due ſenſe and feeling; and, by its penetrating quality, it is of good uſe in a ſciatica and the gout.

PECTORAL LOHOCH.

Take of ſpermaceti, white ſoap, each two drams; white of eggs, a ſufficient quantity. Mix them thoroughly together, and then add of freſh drawn linſeed-oil, one ounce and a half; ſyrup of marſh-mallows, three ounces. Mix the whole well together.

This contains very great emollient and balſamic virtues; and, by the inciting and detergent property of the ſoap, becomes a powerful deobſtruent in infarctions of the breaſt; hence it is recommended in a difficulty of reſpiration, either from a dry huſky cough, or a tough thick phlegm; and likewiſe in impoſthumations and tubercles of the lungs.

ALOETIC PILLS.

Take ſuccotrine aloes, white ſoap, of each equal parts; thin honey, as much as is ſufficient. Make them into a maſs.

The

The ſoap here is added purely to promote the diſſolution of the aloes in the ſtomach; for pills made up of raiſins, and ſubſtances not eaſily diſſoluble, frequently paſs through the body entire; hence by the purgative quality of the aloes, and detergent property of the ſoap, the glairs and vicidities of the inteſtines are diſſolved and carried off; therefore the pills are ſtomachic, antifebrile, and excellent in nephritic and cholic pains.—Moreover, the aloes, being hepatic, forward the diſcharge of the bile, whilſt, by the concomitancy of the ſoap, it breaks the obſtructions of the liver, blends and aſſimilates the humours. Hence it appears how advantageous and eſſential it is to adapt and combine medicines judiciouſly.

PURGING ECPHRATIC PILLS.

Take ſuccotrine aloes, extract of black hellebore, ſcammony, of each two ounces; vitriolated tartar, three drams; diſtilled oil of juniper, a dram and a half; ſyrup of buckthorn, as much as is ſufficient to make the whole into a maſs.

Theſe are an excellent hydragogue, particularly in cachectic and ſcorbutic habits abounding with dropſical humours. Three or four of theſe may be taken once a-day, or every other day, and continued according to the exigency of the complaint.

MERCURIAL PILL.

Take of purified quickſilver and honey, each half an ounce. Rub them together in a mortar, till the globules of mercury are perfectly extinguiſhed; then add of Caſtile ſoap, two drams; powdered liquorice, or crumb of bread, a ſufficient quantity to give the maſs a proper conſiſtence for pills.

When ſtronger mercurial pills are wanted, the quantity of quickſilver may be doubled. The doſe of theſe pills is different, according to the intention with which they are given. As an alterant, two or three may be taken daily. To raiſe a ſalivation, four or five will be neceſſary. Equal parts of the above pill, and powdered rhubarb made into a maſs, with a ſufficient quantity of ſimple ſyrup, will make a Mercurial Purging Pill.

MERCURIAL SUBLIMATE PILL.

Diſſolve fifteen grains of the corroſive ſublimate of mercury in two drams of the ſaturated ſolution of crude ſal ammoniac, and make it into a paſte, in a glaſs mortar, with a ſufficient quantity of the crumb of bread. This maſs muſt be formed into one hundred and twenty pills.

This pill, which is the moſt agreeable form of exhibiting the ſublimate, has been found efficacious, not only in curing the venereal diſeaſe, but alſo in killing and expelling worms, after other powerful medicines had failed. For the venereal diſeaſe, four of theſe pills may be taken twice a-day, as an alterant three, and for worms two.

PACIFIC PILLS.

Take of galbanum, myrrh, white ſoap, of each two ounces; opium, one ounce; ſyrup of ſugar, as much as is ſufficient to make the whole into a maſs fit for pills.

Theſe are admirable in aſſuaging hypochondriacal and hyſteric complaints, nephritic and uterine pains, cauſed either from obſtructions, or ulcers in the kidneys or uterus.

THE PECTORAL PILLS.

Take of gum ammoniacum, an ounce and a half; myrrh, one ounce; balſam of ſulphur terebinthinated, one dram; ſyrup of marſh mallows, as much as will make the whole into a maſs.

Theſe are healing and balſamic in a hæmopthiſis, infarctions, and ulcers of the lungs.

STOMACHIC PILLS.

Take of ſuccotrine aloes, an ounce and a half; gum ammoniac, myrrh, each half an ounce; vitriolated tartar, two drams; diſtilled oil of mint, half a dram; ſyrup of ſugar, a ſufficient quantity. Mix according to art.

Theſe, by their cathartic, bitter, attenuating, and aromatic, qualities, incite and purge away ſloughy humours, which foul the coats of the ſtomach; alſo warm and fortify the fibres, whereby the gaſtric juice and digeſtion are promoted. They are moſt convenient in an advanced age, and full cachectic habits, which abound with cold viſcid humours. They may be taken five or ſix at a doſe.

THE BALSAMIC POTION.

Take of balſam copaiba, three drams; diſtilled oil of juniper, thirty drops; the white of an egg. Work them well together, and mix in, of fennel-water, compound horſe-radiſh water, each three ounces; ſyrup of marſh-mallows, two ounces.

This is vulnerary and diuretic; hence chiefly of uſe in wounds, ulcers, and weakneſſes, of the kidneys and uterus.

LITHONTRIPTIC POTION.

Take of white ſoap (the outward part being pared off), one ounce; warm lime-water, one quart. Stir them together till the ſoap is perfectly diſſolved.

This, by its penetrating and alkaline virtues, is intended for the gravel and ſtone, which it diſſolves and prevents by aſſimilating the humours, and by abſorbing thoſe aſcidities which form calculous concretions.

COMPOUND SPIRIT OF LAVENDER.

Take flowers of lavender, freſh gathered, a pound and a half; freſh flowers of roſemary, half a pound; freſh outward part of lemon-peel, three ounces; rectified ſpirit of wine, a gallon and a half. Diſtil in balneo mariæ to dryneſs. In the diſtilled ſpirit ſteep for two days, of cloves, cubebs, and ſhavings of red ſaunders, each two ounces; then ſtrain out the ſpirit for uſe.

POWDER

POWDER FOR EPILEPTIC AND CONVULSION FITS.

Take flowers of zinc, muſk, and factitious cinnabar, of each equal parts; mix them together in a glaſs or marble mortar. The doſe is from three grains to ten and upwards, mixed in a little treacle or honey, every night and morning.

The uſe of this powder, with dipping children in a tub of ſpring-water every morning, has very often relieved them, when every other remedy has proved abortive.

PURGING POWDERS FOR WORMS.

Take of ſcammony, calomel, and the beſt Turkey rhubarb, in powder, of each equal parts; double-refined ſugar, the weight of the whole; rub it all very well together in a marble mortar, and keep for uſe.

The doſe for children is from ten grains to twenty-five, once or twice every week. This is preferable to any quack-medicine whatever.

AN UNIVERSAL POWDER FOR CHILDREN'S DISORDERS.

Take of white magneſia, ſix drams; cinnabar of antimony, two ſcruples; mix them into a fine powder for uſe.

This powder will not only prevent the numerous diſorders children are liable to, but will alſo remove many, and all that ariſe from acidities in the ſtomach. —This is preferable to all other remedies yet known, for children in cutting their teeth, ſickneſs at their ſtomachs, &c. &c. The doſe is from ten grains to half a dram more or leſs, twice a-day.

POWDER TO PROMOTE DELIVERY.

Take borax in fine powder, caſtor, cinnamon, and myrrh, of each three drams; ſaffron and ſavin, of each one dram and a half; mix them, and make a powder for uſe.

A dram of this powder facilitates the birth, and promotes the lochia and menſes.

THE FAMOUS SYMPATHETIC POWDER.

Take of green vitriol, eight ounces; of gum tragacanth reduced to an impalpable powder, one ounce; mix theſe together, and let a ſmall quantity of the powder be ſprinkled on the wound, and it immediately ſtops the bleeding. The vitriol muſt be calcined to whiteneſs in the ſun, before it be mixed with the gum.

The above powder is uſed by the miners at Goſſelaer in Germany, in all their wounds; and, I believe, was never known to fail. This powder, Monſ. Lemery and Sir Kenelm Digby tells us, has alſo the following wonderful property; that, if it be ſpread on a cloth dipped in the blood of a wound ſo as to incorporate with the blood, the wound would be cured, though the patient were miles off, and never ſaw the medicine. From this remarkable ſympathetic property it derived its name.

POWDER FOR A SORE THROAT.

Take one ounce and a half of purified ſal ammoniac, and half an ounce of purified nitre, mix them very well together in a mortar for uſe.

About ſix or eight grains of this powder is to be frequently held in the mouth, and to be gently ſwallowed down the throat. This very often anſwers better than gargles. If neceſſary, loſe a little blood and take a briſk purge before you uſe the powder.

FOR VOMITINGS, BILIOUS DISORDERS, &c.

Take mint-water, ſyrup of lemons, of each four ounces; ſalt of wormwood, two drams. Mix them well together for uſe.

In vomitings, hiccups, rheumatiſms, fevers, and all diſorders from a fizineſs in the blood, no preparation can be more innocent nor more efficacious. Two or three table ſpoonfuls are to be taken every four or five hours.

DECOCTION FOR CATARRHS, COLDS, &c.

Take of compound teſtaceous powder, one ounce; gum arabic in powder, half an ounce; water, two quarts. Boil it till one pint of the water is waſted: then add to the turbid decoction, of aromatic water, one ounce and a half; white ſugar, half an ounce; and mix the whole well together for uſe.

This compoſition will be found immediately uſeful in deſtroying ſharp corroſive matter in the ſtomach, and abſorbing all acidities in the firſt paſſages. Half a pint of it in fevers, colds, or the like diſorders, may be taken three or four times every day, blood-warm.

SWEATING DRAUGHT, FOR RECENT COLDS.

Take of the ſpirit mindereus, four ounces; ſyrup of poppies, and ſimple cinnamon water, of each one ounce; volatile ſalt of hartſhorn, half a ſcruple. Mix them together for two draughts, and take one of them when going into bed, and the remainder the ſecond evening after.

In rheumatiſms, pains in the head and other parts, the above ſweating draught will be found to anſwer every intent.

FOR AN INVETERATE COLD OR COUGH.

Take a large tea-cup full of linſeed, two-penny-worth of ſtick-liquorice, and a quarter of a pound of ſun-raiſins.— Put theſe into two quarts of ſoft water, and let it ſimmer over a ſlow fire till it is reduced to one; then add to it a quarter of a pound of brown ſugar-candy pounded, a table-ſpoonful of old rum, and a table-ſpoonful of the beſt white-wine vinegar or lemon-juice. The rum and vinegar are beſt to be added only to that quantity you are going immediately to take; for, if it is put into the whole, it is apt, in a little time, to grow flat. Drink half a pint at going to bed, and take a little when the cough is troubleſome.

This

This receipt generally cures the worſt of colds in two or three days, and if taken in time may be ſaid to be almoſt an infallible remedy. It is a moſt ſovereign and balſamic cordial for the lungs, without the opening qualities which endanger freſh colds by going out. It has been known to cure colds that have been almoſt ſettled in conſumptions, in leſs than three weeks.

For a PUTRID SORE THROAT.

Take of the beſt Peruvian bark, in groſs powder, one ounce and a half; Virginian ſnake-root, three drams: boil them together in three quarts of water to one quart; then ſtrain the liquor, and add two drams of elixir of vitriol; take a large tea-cup full of it every third hour. To every doſe you may add a ſmall quantity of brandy if you chuſe it.

The ſteam of the following ingredients received into the throat through a funnel every hour will do a deal of ſervice.

Take vinegar, one pint; honey, half a pound; myrrh, in powder, half an ounce: boil them well together, and it is fit for uſe.

Bliſters applied to the throat, and behind the ears, are equally beneficial in this diſeaſe, in caſe the pulſe and ſpirits are very low. If a vomiting continues, *Take four table ſpoonfuls of lemon-juice, and put it to one dram of ſalt of tartar; white ſugar, half an ounce; mint-water, three ounces: mix them very well together.* The doſe is a table-ſpoonful every hour.—This is the famous ſaline julep, ſo much approved of by the faculty as an antidote againſt vomiting and ſickneſs of the ſtomach. After the diſorder is ſubdued, the patient ſhould take a few purges of rhubarb, ſena, or the like. But, on the contrary, whilſt the putrid ulcers remain in the throat, if a violent looſeneſs ſhould come on, it muſt be checked, by taking two tea-ſpoonfuls of diaſcordium two or three times a-day.

ALE for the INWARD PILES.

Take half an ounce of black pitch, and boil it in a pint of good ale till it comes to half a pint; then drink it off blood-warm.

This, though a ſimple remedy, has proved very effectual in many ſtubborn caſes, where other things of much greater expence have proved abortive.

ALE for the JAUNDICE.

Take one quart of ale, and add to it two ounces of hemp-ſeed, and half an ounce of turmeric, in powder: boil them over the fire about a quarter of an hour, then ſtrain it for uſe.

This may be ſweetened with coarſe ſugar. Half a pint of it at a doſe; to be taken every morning.

VOMITING DRAUGHT.

Take of ipecacuanha, in fine powder, twenty-five grains; alexeterial water, half an ounce; compound ſpirit of lavender, half a dram; ſyrup of orange-peel, one dram; mix them for uſe.

DRAUGHT for the DROPSY.

Take of peppermint water, one ounce; ſimple cinnamon-water, half an ounce; ſpirituous cinnamon-water, two drams; thebaic tincture, forty drops; lye of tartar, half a dram; ſyrup of marſh-mallows, one dram: mix them together for a draught.

This is the medicine which cured a perſon labouring under an aſcites and tympany at the ſame time, where the pain was very ſevere, attended with great thirſt, and thick high-coloured urine rendered in ſmall quantities. The ſtrong purges increaſed the diſtemper. Soap, lixivial ſalts, balſam of gilead, nitre, and the like, all proved abortive. This draught brought unexpected relief, by procuring reſt, and cauſing a copious diſcharge of water. By repeating the medicine for ſome time, every eight hours, and then only twice a-day, and afterwards uſing corroborants, or medicines that produce ſtrength of body, &c. the cure was perfectly completed.

For CONSUMPTIONS.

Take leaves of comfrey the greater, Solomon's ſeal, and pimpernel, each four handfuls; liquorice-root, two ounces: infuſe them cold for twelve days in two gallons of lime-water, and take off the clear liquor for uſe.

This is very eaſily made, and is much better than if it were to be diſtilled. It is of excellent uſe in ſuch conſumptions as proceed from a ſharp thin blood; eſpecially in thoſe who have been injured by a certain bad diſeaſe, or have any hereditary remains of ſcrophulous or leprous humours. It muſt be drunk for about forty days together, to the quantity of a quart or two every day, if the ſtomach can bear ſo much. It will alſo be of the utmoſt ſervice to waſh foul ulcers with.

DECOCTION for INWARD DECAY.

Take ground-ivy, ſcabious, and colt's-foot, each two handfuls; hyſſop, one handful; elecampane-root, one ounce; liquorice, four ounces; agrimony, four handfuls: boil them together in nine quarts of barley-water till they come to about a gallon; then ſtrain it for uſe.

This pectoral can be depended on in coughs and conſumptions of the lungs.

For the ASTHMA, and SHORTNESS of BREATH.

Take of the milk of gum ammoniac, ſix ounces; ſyrup of ſquills, four ounces and a half: mix them together.

This promotes expectoration in a very great degree, and relieves thoſe who are ſhort-breathed; it is alſo juſtly eſteemed for its ſerviceable properties in aſthmatic caſes, by rarefying and thinning viſcid coheſions in the pulmonary veſſels. A ſpoonful is to be taken four or five times every day, and in particular every morning.

INJECTIONS FOR ULCERS IN THE VAGINA AND WOMB.

Take quickſilver, balſam capivæ, of each half an ounce: beat and work them together, till the quickſilver is extinguiſhed; then put to the maſs, the yolk of an egg: mix them very well together, gradually adding half a pint of roſe-water.

As well as for injections in ulcers in the vagina occaſioned from the corroſiveneſs of a long continuance of the whites, it is equally as efficacious for a gonorrhœa, particularly if any ulcers be in the urethra. This ſimple preparation ſheathes the excoriated parts from the acrimony of the urine.

ESSENCE FOR THE HEAD-ACH.

Take of French brandy, or rectified ſpirit of wine, one quart; put it into a ſtrong bottle; and add one ounce of camphor cut ſmall; a quarter of an ounce of eſſence of lemon; and two ounces of the ſtrongeſt volatile ſpirit of ſal ammoniac. Stop the bottle quite cloſe, and ſhake it three or four times a day for a week.

The method of uſing it is to rub the hand with a little of it, and hold it hard upon the part affected until it is dry; if the pain is not quite relieved, repeat it till it is.

COMPOUND TINCTURE OF SENA, COMMONLY CALLED DAFFY's ELIXIR.

Take of the beſt ſena, two ounces; jalap, coriander-ſeeds, and cream of tartar, of each one ounce; coarſe ſugar, three quarters of a pound; brandy, three pints; let them ſtand for ten or twelve days; then ſtrain off what is fine for uſe.

This is an agreeable purge, and nothing can be more uſeful than to keep it ready-made for family uſe.

GODFREY's CORDIAL.

Take ſeven gallons of water, raſpings of ſaſſafras, and aniſeſeeds, of each four pounds; powder of carraway-ſeeds, eight ounces; opium, ſix ounces; coarſe ſugar, fifteen pounds: boil them together, till one half of the liquor be evaporated; then ſtrain it through a coarſe bag or cloth, and add three gallons of ſpirit of wine rectified.

STOUGHTON's BITTERS.

Take gentian-root, two ounces; dried orange-peel, two ounces and an half; cochineal, in powder, half a dram; proof ſpirit, or brandy, two pounds; let them ſtand ten or twelve days, and decant off what is clear for uſe.

FRIAR's BALSAM, COMMONLY CALLED TURLINGTON's BALSAM, OF LIFE.

The true and beſt method of making it: Take gum benjamin, twelve ounces; gum ſtorax, eight ounces; balſam of Tolu (or Peru), four ounces; ſoccotrine aloes, two ounces; rectified ſpirit of wine, five quarts and a pint: let them ſtand to digeſt twelve or fourteen days, then decant for uſe.

PILLS FOR GIDDINESS, PALSY, HEAD-ACH, &c.

Take native cinnabar, levigated, two drams; caſtor, and ſalt of amber, of each one dram; oil of marjoram, fifteen drops; balſam of Peru, one dram; ſyrup of piony, a ſufficient quantity to make the maſs; and form nine pills out of every dram of it. The doſe is three of them to be taken three times a-day.

PASTE FOR THE FISTULA, PILES, &c.

Take a pound of elecampane-root, three pounds of fennel-ſeeds, and one pound of black pepper; let theſe be made into a very fine powder, ſeparately; take two pounds of honey, and the ſame quantity of ſugar, in powder; melt the honey and ſugar together over a gentle fire, ſcumming them continually, till they become as bright as amber: when they are cool, mix and knead them into your powders in the form of a paſte.

The doſe is the ſize of a nutmeg, morning, noon, and night. This has been found a ſpecific for the fiſtula, piles, &c.

FOR THE WHOOPING COUGH, BY THE ROYAL COLLEGE OF PHYSICIANS.

Take flowers of benjamin, and ſtrained opium, of each two drams; camphire, two ſcruples; eſſential oil of aniſeſeed, half a dram; rectified ſpirit of wine, one quart: digeſt, and ſtrain off the elixir.

This is originally from Le Mort, and was publiſhed by Quincy, with four ounces of liquorice, and four of honey, which the college have omitted. It is anodyne and diaphoretic, and greatly contributes to allay tickling coughs, to open the breaſt, to give freedom of breathing, to cure an aſthma, but particularly the WHOOPING-COUGH IN CHILDREN. The doſe for children is from five drops to twenty; and, to grown perſons, from twenty to an hundred, at night and morning, in Malaga wine.

Dr. SMITH's PRESCRIPTION FOR THE WHOOPING COUGH.

Take of the muſk julep, ſix ounces; paregoric elixir, half an ounce; volatile tincture of valerian, one dram: mix them, and take two ſpoonfuls three or four times every day.

Take milk of gum ammoniac, and of ſmall cinnamon-water, of each two ounces; tincture of caſtor, two drams; ſyrup of balſam, half a dram: mix them, and adminiſter one ſpoonful preſently after.

Towards the decline of the diſeaſe, a decoction of the bark, in full doſes, may be preſcribed to advantage.

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END OF MEDICAL PART.